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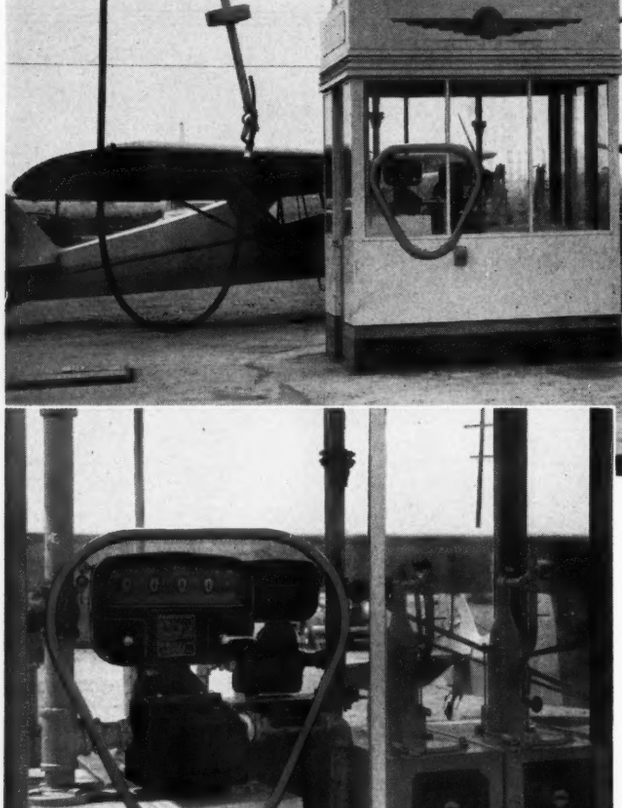
fueloil & oil heat

NEW AIRPORT GAS ISLAND
SPEEDS Fueling of Private Planes

Compton Airport Photos: Courtesy of SHELL OIL COMPANY



With 3 BRODIE METERS equipped with BRODIMATIC Counters

Reflecting a trend in airport service, this new modern gas island offers complete service station facilities to small private planes — relieving delays and congestion —and adding to safety on busy fields. To keep an accurate and running account of the exact gallonage as it is loaded, Brodie Meters equipped with Brodimatic, direct-reading counters, are installed in full view of attendant and customer.

Standard Counter Adaptors allow counters to be faced in any one of 12 different positions. New 360° Swivel Adaptor permits counter to be turned to face any direction, even while meter is running, without affecting the accuracy of meter reading. This permits full visibility of large distance-spanning direct gallonage readings from any point around the loading curb. Adopt Brodie Meters for your operations. Write for Full details, today.

BRODIE METERS

PETROLEUM METERING EXCLUSIVELY

SINCE 1927

RALPH N. BRODIE CO., Inc., 61ST & LOWELL, OAKLAND, CALIF., U.S.A., CABLE ADDRESS "BRODICO" • *Division Offices:* CHRYSLER BLDG., NEW YORK CITY • 59 E. VAN BUREN, CHICAGO 5 • 302 SOUTH PEARL ST., DALLAS 1, TEXAS • 221 - 9TH AVE. NORTH, SEATTLE 9, WASH. • 2101 S. SAN PEDRO, LOS ANGELES 11, CALIFORNIA.

REPRESENTATIVES AND STOCKS IN ALL PRINCIPAL CITIES

Names in the News

John R. Sherwood has become president, *John W. Sherwood* has advanced to the newly-created position of chairman of the board and *J. Miller Sherwood* will be executive vice president, Sherwood Bros., Inc., Baltimore, Md., as the result of action taken at a recent meeting of the Board of Directors. John W. Sherwood founded the business in 1896 and last year celebrated the fiftieth anniversary in ceremonies that marked its rise from a small waterfront activity to a leader in all branches of the petroleum industry in Maryland. John R. and J. Miller Sherwood, sons of the founder, have been active in the business since 1923 and 1929, respectively. John R. directed the company's entrance into the oilheating field, and J. Miller is in charge of terminal, plant and delivery operations. Operations of Sherwood Bros., marketers of Sherwood fueloil and Sinclair Petroleum Products, center around a 104 acre deep-water terminal located in the Curtis Bay area and twenty-five other branch plants covering the state.

John R. Sherwood

Howard Sherman has been made advertising manager of both Power Burner and Vaporizing Burner Divisions, Silent Glow Oil Burner Corp., Hartford 6, Conn. In addition to general supervisory and promotional duties, he will have charge of dealer requests for advertising and sales promotion materials. Mr. Sherman, one of two sons of R. M. Sherman, Silent

fueloil & oil heat

VOL. 6, NO. 5

SEPTEMBER 1947

C O N T E N T S

SUBJECT	PAGE	AUTHOR
Service By Radio	67	A. E. COBURN
99 Gallons Per Truck Mile	70	ROBERT GRAY
Carbon-Hydrogen Ratio	72	HENRY R. LINDEN
Oil Piping for Pressure Burners	75	J. W. SCHULZ
Controlled Air Delivery	79	C. H. BURKHARDT
I Used Gas A Year	81	A. B. WOLLE
Additional Fueloil Rations	86	

NEWS

Price Increases on Burner Parts	69
"Gas Age" Survey of Heating Restrictions	69
API Booklet to Encourage Oil Saving	82
Half of Majors Refuse New Accounts	84
Compact Commission Sees Tighter Outlook	90
Philadelphia Natural Gas For Enrichment	90
Brooklyn Gas Asks Raise	92
Standards Bureau Has Building Division	94
Omaha Shows Oil Gains	96
Spot Check On Filling Customers' Tanks	96
Govt. Made Millions On Pipeline Operation	100
Seattle Discourages Electric Heating	100
Oil Drilling Slowed By Steel Shortage	102

DEPARTMENTS

5	Names In The News
8	Editorial Leaks
10	Oilheating Trends
12	Fueloil Supplies
78	Twenty Years Ago
110	Industry Groups
120	Readers' Forum
122	Everyday Snags
132	Readers Problems
142	Sales Literature
146	Manufacturers Activities
154	New Products

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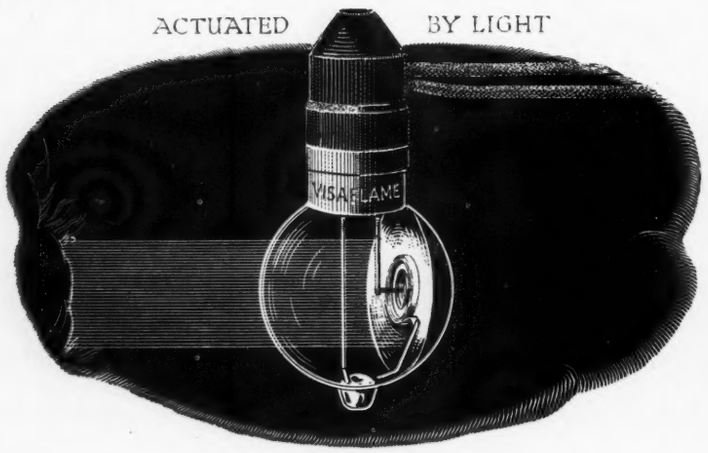


MERCOID
VISAFLAME

The most advanced Safety Control System for domestic and industrial Oil Burners

Complete information in bulletin No. V-9

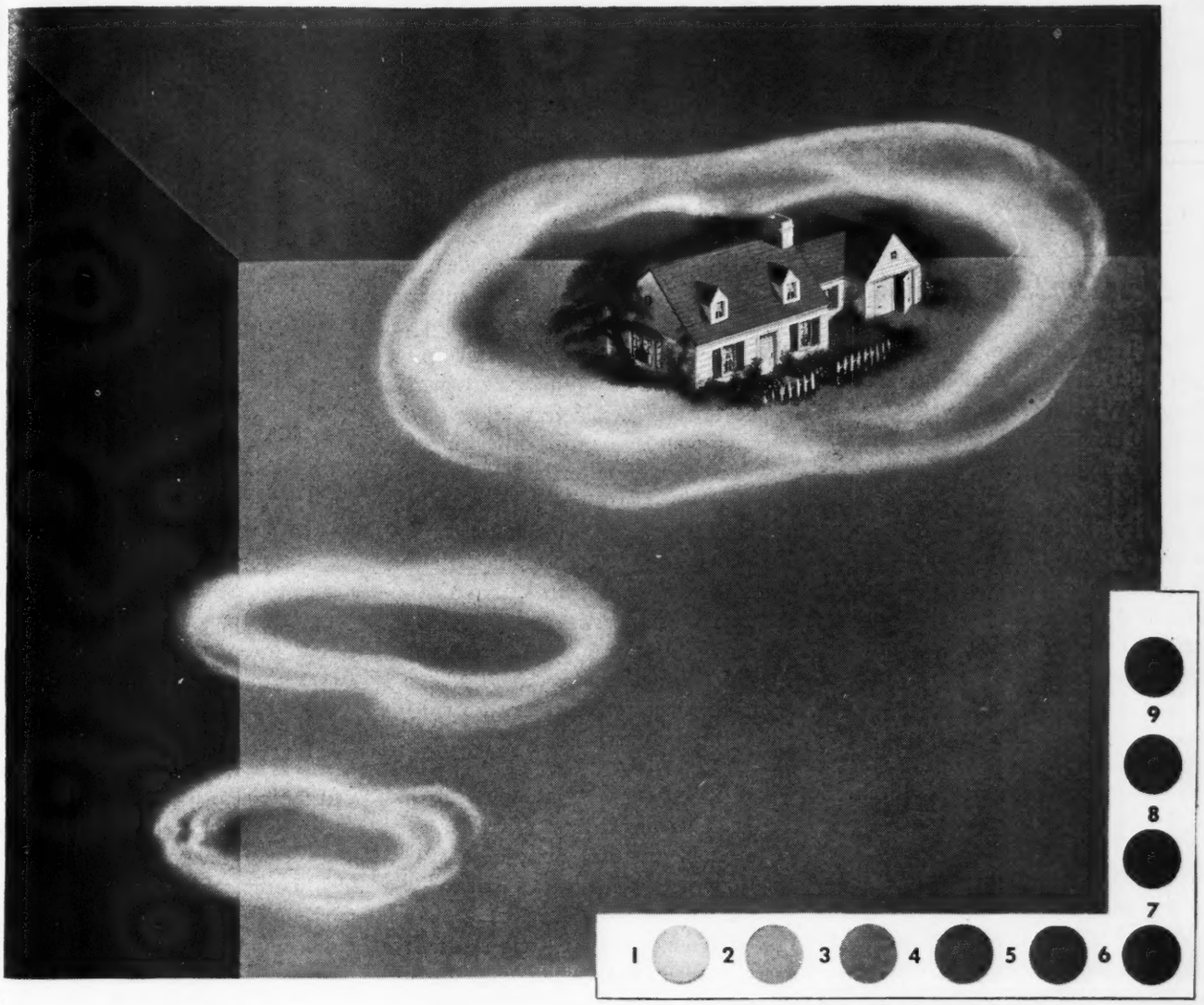
THE MERCOID CORPORATION • 4201 BELMONT AVE., CHICAGO, ILL.
Manufacturers of dependable automatic controls for a quarter of a century

Glow's president, has been with the company for three years and has acquired both factory and office experience. During the war he was with the Research and Development Branch, U. S. Army Engineers, Fort Belvoir, Va.

Robert O. Dehlendorf, for the past two years eastern district manager, Emerson Electric Mfg. Co., has joined the sales staff of Jack & Heintz Precision Industries, Inc., Cleveland, Ohio, as eastern district sales manager of the Electric Motor Div. Operating out of New York City, he will cover the sales territory embracing the entire eastern seaboard. Mr. Dehlendorf's twenty-three years' experience, after graduating from M.I.T. in 1924 with the degree of Electrical Engineer, include fifteen years activity in engineering capacities and eight as a key sales executive.

G. A. (Jerry) Dulmage is announced as New York manager of the Oil Heating Div., Igoe Bros., Brooklyn 11, N. Y., distributors of Duo-Therm oilburning equipment. Mr. Dulmage has been active in the oilburner field in New York for the past nineteen years, including positions with Kelvinator's Heating Division for seven and a half years and affiliations with two other important oilburner dealers in the area.

Edward D. Stevens, who for the past year has functioned as Midwest representative for Clean Sweep Co., Lansing, Mich., has advanced to the position of sales manager. His extensive sales experiences is expected to be of value in the new sales promotion program the company is preparing. Clean Sweep manufactures a soot remover, developed especially for use on vaporizing type burners and applicable also to pressure and rotary types.



Smoke Doctors, using scales like this, are able to measure the soot content of samples of combustion gases . . . their aim—correct combustion.

Soots TO MEASURE

SMOKE—from the smoke ring you idly blow, to the cloud begriming a city—is unburned fuel. It's *waste* . . . An efficient flame burns smokeless, sootless. That's why engineers hate smoke.

At the Shell Oil Burner Testing Laboratories, in Sewaren, New Jersey, are a group of "Smoke Doctors"—scientists who fight smoke and soots.

When the "Smoke Doctors" began their work 18 years ago, domestic heating oil was "something left over" when gasoline was refined. But these doctors took a different view: Their job was to get heating oil made with the same care and precision as motor fuel . . . and to help burner manufacturers improve their equipment.

Their spotless laboratory building is the center of home heating oil research. Many of their findings have been made available to all refiners of heating oil. All makers of oil burners have been invited to share.

As a result of their work, the consumer has received substantial bonuses, year after year, in the form of lowered costs and improved heating efficiency.

* * *

This is but one of the many ways the "Smoke Doctors" at Sewaren are serving consumer, dealer and manufacturer alike.

SHELL FUEL OIL

SHELL

fuel oil & oil heat

Editorial Leaks

The Texas Company has completed a new fluid catalytic cracking unit at its Caspar, Wyoming, refinery. Its capacity of 4,000 barrels a day is much lower than other existing catalytic installations, and opens the way for practical use of this process by small companies with refineries as low as 10,000 barrels a day crude runs. Because the catalytic process provides flexibility not found in other refining methods, any refiner can profit through the acquisition of such a unit.

This is of special interest to oilheating men, for it points to the day when most fueloil will be cat cracked, even that of the little plant, and straight run heating oil correspondingly more scarce.

◈

The uncertainty over the forthcoming supply and demand relationships in distillate fueloils has brought into several markets an unsettled price condition that is causing concern to many fueloil distributors. Prices at different levels would be nothing unusual in many industries, but in pricing oil products it has been common practice to follow the up or down movements of the largest supplier in each general section of the country.

Standard of Jersey in July announced a hold-the-line policy and has stuck to it even though Socony, Atlantic, Sun and several others have since raised fueloil prices from 4/10 to 6/10 above Jersey's figure. Moreover, most of Jersey's marketers, their wholesale accounts, have gone up along with the rest of the markets, leaving the parent company almost alone in holding down the figure on its direct business. The effort on Jersey's part is highly commendable, in spite of the fact that a few of their smaller competitors feel that they are underselling the market for raiding purposes.

There is not the slightest question but that net profits of the large refining companies are too high to be sound; they are embarrassingly high. Jersey wants them to stop going up, but it is admittedly a hard position to hold, with the scarcity of product in itself creating a price vacuum that has a lot of suction power.

Out in Chicago, B. L. Majewski, marketing vice-president of Deep Rock, and head of the marketing division of the American Petroleum Institute, announced a few days ago that his company was raising retail prices on heating and diesel fuels a half cent a gallon throughout the Midwest, without waiting for the market leader to act . . . in fact Majewski intimated that he was tired of wishing that someone else would make the move and pointed out that rising marketing costs demanded more margins, and this was the quick way to get them. He urged all marketers to set their own prices to compensate for their costs.

If as a result of present unsettled pricing the market leaders should find that they no longer are such, many will believe that they brought it on themselves.

◈

The following lament is from National Coal Assn. Industry Bulletin #2484:

Notwithstanding the fact that we have often been told Diesel engines would not be used extensively in railroad freight service, recent figures released by the ICC prove this prognostication untrue. For example, in the first four months of 1941 Diesel fuel in freight service amounted to only 645,000 gallons, while in the first four months of 1947, 97,000,000 gallons of Diesel fuel were consumed by the railroads in freight service alone.

◈

Watson Snyder, oil expert in the Department of Justice, is stirring again. This time he is starting action against certain majors, through their division offices centering around Washington, in an attempt to prove skulduggery in establishing prices of petroleum products, in violation of anti-trust laws.

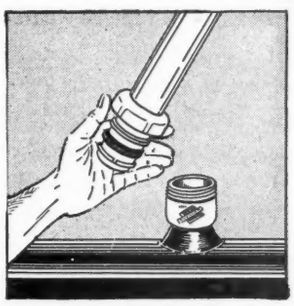
This action is one of the opening guns aimed at stopping the rise in prices, avoiding an inflationary spiral, not only in oil but in steel and other commodities.

The Justice Department has its hands full this time. It is going to be mighty hard to prove nefarious action or intent, and actually win such cases, but it won't be so hard to get a lot of newspaper publicity, which may be the actual goal anyway, with a presidential election just a year off.

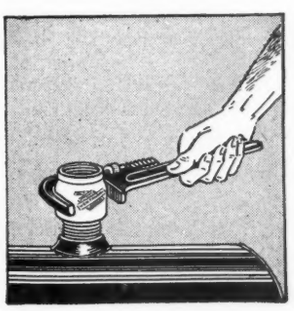
Oil prices are too high; oil profits are high at the refinery level, but these are the result of a generally inflated economy, the result of a threatened short supply, not of conniving behind the scenes.

"These light homes they throw up aren't like the old homes, Ralph—you shouldn't have chained Rover to it!"

COMPETITION CALLS FOR



The LC model VENTALARM is easily installed on old tanks. A quick compression fitting with bayonette lock eliminates any pipe threading. Takes only 15 to 20 minutes.



The LA model VENTALARM is installed on tank when new burner is being put in. Threaded top receives threaded vent pipe in usual manner. No extra time required.

YOUR COMPETITION may be other fuel oil companies or oil burner dealers who offer VENTALARM fill signal as standard customer tank equipment. Your competition may be a salesman of gas heat. In any case, you can be sure that all three are telling their prospective customers that they offer *completely* automatic heat with no need for their customer to worry about fuel supply, spillage, muss or bother.

Over a million oil-heated homes now enjoy VENTALARM. Householders definitely *like* VENTALARM controlled oil delivery.

Are *you* using VENTALARM signal? Are *you* keeping abreast of *your competition?*

In stock at your favorite supply house

SCULLY

VENTALARM

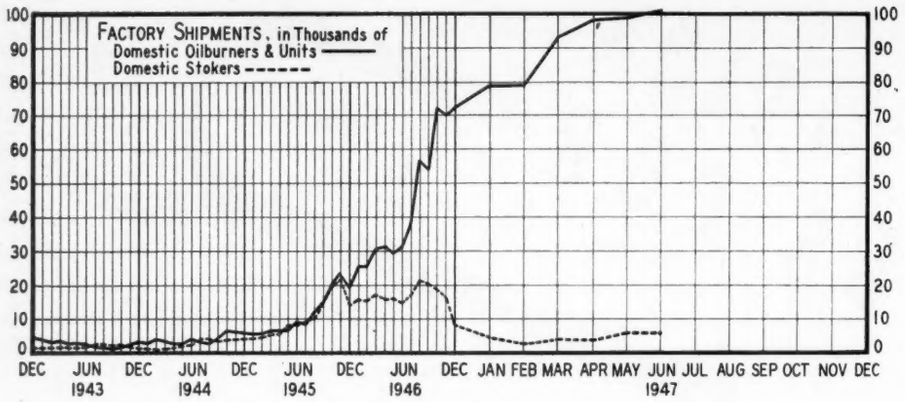
T.M. REG. U.S. PAT. OFF.

Whistling TANK FILL SIGNAL

SCULLY SIGNAL COMPANY
88 FIRST STREET · CAMBRIDGE 41, MASS.

Canadian Licensee — EMPIRE BRASS MFG. CO., LIMITED, London, Ontario

fuel oil & oil heat

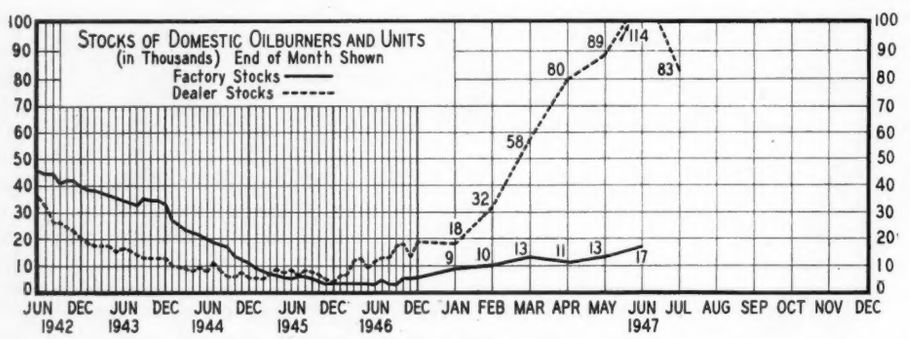

FACTORY SHIPMENTS, in Thousands of
Domestic Oilburners & Units ——
Domestic Stokers ------
DEC JUN DEC JUN DEC JUN DEC JUN DEC JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC
1943 1944 1945 1946 1947

Shipments of Oilburners and Units

(Including Exports)

Adjusted to include manufacturers other than the 162 reporting to Census Bureau, FUELOIL & OIL HEAT'S estimates of shipments are:

	JUNE			SIX MONTHS		
	1947	*1946*	*Percent Change*	*1947*	*1946*	*Percent Change*
Conversion	86,374	27,308	+216.3	449,768	156,267	+187.8
Boiler units	6,965	2,350	+196.4	25,105	7,825	+220.8
Furnace units	15,575	1,892	+723.2	87,540	10,329	+747.5
All domestic	108,914	31,550	+245.2	562,413	174,421	+222.4
Commercial	4,047	3,328	+ 21.6	27,074	16,714	+ 62.0
Total	112,961	34,878	+223.9	589,487	191,135	+208.4

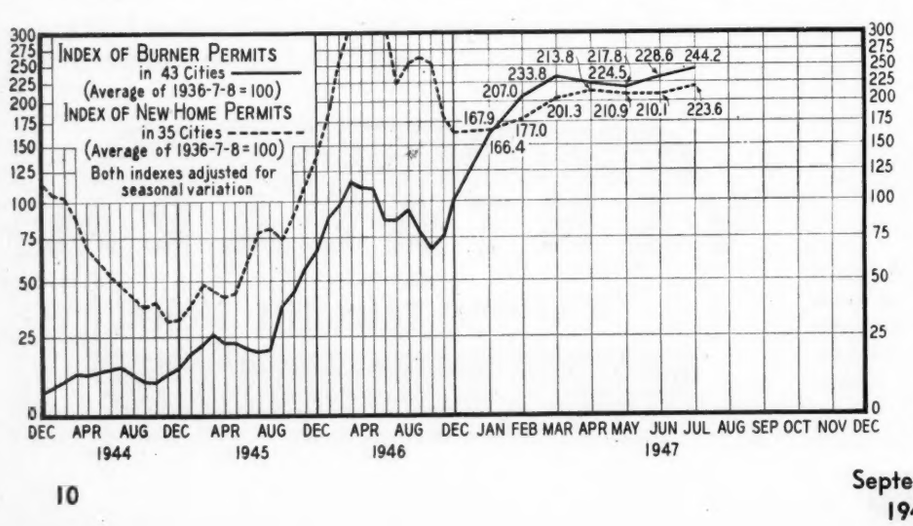

STOCKS OF DOMESTIC OILBURNERS AND UNITS
(in Thousands) End of Month Shown
Factory Stocks ——
Dealer Stocks ------
JUN DEC JUN DEC JUN DEC JUN DEC JUN DEC JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC
1942 1943 1944 1945 1946 1947

July Minimum Retail Prices: Key Dealers

	CONVERSION BURNERS	BOILER-BURNERS	FURNACE BURNERS
Highest	$500	$973	$850
Lowest	275	395	550
July Aver.	348	680	603
June Aver.	348	693	605

Price Index: Conversion Burners: January 1940 is 100%

WHOLESALE				RETAIL			
July	144.0	Six months ago	165.3	July	144.7	Six months ago	147.9
June	150.2	Year ago	123.6	June	145.6	Year ago	135.3


INDEX OF BURNER PERMITS
in 43 Cities ——
(Average of 1936-7-8 = 100)
INDEX OF NEW HOME PERMITS
in 35 Cities ------
(Average of 1936-7-8 = 100)
Both indexes adjusted for seasonal variation
DEC APR AUG DEC APR AUG DEC APR AUG DEC JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC
1944 1945 1946 1947

Oilheating Trends

ESTIMATED INSTALLATIONS of domestic oilburners and units in July were 79,920, a little more than double the 38,187 installed in the same month of 1946. Total installations for seven months were approximately 397,392 this year and 202,861 last year. Present installation rates do not indicate that the public is much concerned over future oil supplies, particularly after they have placed an order for a burner . . . in other words they do not cancel or defer installations on orders placed some time ago.

The Midwest, where possible oil shortages have been most publicized, is actually leading the rest of the country in rate of gain over last year in number of installations. Notice the Midwest cities in the permit table.

New orders, however, are lagging behind installations to a considerable degree, showing some inclination to hold back on commitments. During July dealers got approximately 33,944 new orders, or less than half the number of installations in the month. For seven months this year new orders have been 245,685, compared with 238,173 in the previous year.

BURNER STOCKS: Dealer stocks of domestic oilburners and units dropped during July to 83,097, or about thirty thousand below the high point they had reached the previous month. Factory stocks at the end of June, the latest available information, were 16,646.

SERVICE INCOME: Reporting dealers had average service department income in July of $2,558, a rise of 4% over the $2,467 reported by the identical dealers for July 1946. June income had been $2,529 and May $2,300.

OIL PRICE PREMIUMS: Because there had been some conversation in the industry about fueloil changing hands at prices considerably above wholesale posted prices, the reporting group of fueloil distributors was asked if they individually had paid premiums for product. Not one, from any section of the country, admitted paying premiums. Obviously a little of this has been done, but it certainly is not widespread or it would have shown up in this reporting group.

LIMIT ON FUELOIL SUPPLY: Exactly half of the reporting fueloil distributors have been given limits on the amount of prod-

uct they can expect from their suppliers in the season ahead. The other half are unrestricted in their growth rates, or apparently so. Among those who have been given limits, about three-eighths were told that their allotment would be the same as the quantity supplied them last season. The remaining five-eighths of those having restrictions were given stated increases ranging from 10% to 30%, averaging 16%. In the most critical area, the Midwest, only one-third of those reporting have been placed under limits, and those average about a ten percent increase over last season in allotment.

FUEL SAVING EDUCATION: Recognizing that the more fuel saved through public education, the less chance for hardship, and the more chance to add new accounts, dealers this month offer suggestions on how to get oilheating users to conserve. Typical are these . . .

"Give the public definite facts as to what to expect in shortages, to dispel the uncertainty that now exists . . .

"Newspaper and radio publicity—keep temperatures low, etc. . . .

"Unnecessary—we'll have the oil . . .

"Make January oil conservation month—build up publicity during November, December—sacrifice comfort one month.

"Both booklets and advertising . . .

"Campaign to improve efficiency of present burners—the present average is decidedly low . . .

"Install an extra tank—keep filled. Urge storm sash, weather strip, attic insulation, clock thermostats . . .

"Not too drastic—place burners in good economical adjustment . . .

"Letter by oil supplier to customers only . . .

"Close unused rooms. Take Florida vacations. If booklets are used, stress the fact that shortage is due to cumulative effect of coal and steel strikes."

RETARDING BURNER SALES: Efforts are now being made in a few spots to discourage additional burner sales, largely because the oil industry in general does not believe it can handle more than a half million new users next season, and the number is approaching that figure now. Dealer suggestions on how sales might be slowed down include these . . .

"Oil companies should make no definite commitments to supply customers other than promise to do their best . . .

"Don't retard, but make fueloil as profitable as gasoline to refiners and then the supply will materialize . . .

"The shortage of piping and fittings, also tanks, will help slow down the rate of installations—without publicity . . .

"Simply encourage fueloil distributors to live within their fueloil allotments. Suppliers should promptly make allotments where they haven't yet done it, and warn the over-users . . .

"The gas company is doing the job for us nicely in this area . . .

"Keep burner prices up on retail sales. Factories should reduce shipments.

"Use word of mouth warnings only . . .

"Dealers will not cooperate on a program to retard burner sales . . .

"Emphasize replacement sales . . .

"We stopped selling two weeks ago, for we have a backlog of 60 jobs still to put in. We tell them to wait until 1948 . . .

"Eliminate advertising — keep sales force small and productive selling accessories, like tankless heaters, boiler replacements, etc. . . .

"Try to persuade manufacturers of pumps, controls, motors, etc., to limit their distribution to the better type of established manufacturers . . ."

Oilburner* and Building Permits

OILBURNERS					DWELLINGS				
July		7 MONTHS			July		7 MONTHS	
1947	1946	1947	1946		1947	1946	1947	1946
1003	514	..	..	Baltimore, Maryland	348	240	1642	2762
..	..	..	..	Binghamton, New York	16	18	65	72
..	..	..	..	Boston, Massachusetts	85	13	243	118
221	98	807	384	Bridgeport, Conn.	..	..	..	..
..	..	..	..	Buffalo, New York	36	15	132	130
..	..	..	..	Des Moines, Iowa	113	126	..	740
..	..	..	..	Detroit, Michigan	1195	607	5706	5564
86	84	..	339	Elizabeth, N. J.	3	0	73	9
33	45	208	219	Freeport, New York	..	..	..	..
..	..	..	..	Greenwich, Conn.	17	21	119	130
..	..	..	..	Hackensack, N. J.	3	2	23	49
157	102	1047	468	Hartford, Conn.	..	..	..	..
..	..	..	..	Irvington, N. J.	3	5	15	13
..	..	..	..	Lynn, Massachusetts	19	4	72	34
41	8	206	114	Meriden, Conn.	..	..	..	..
235	87	1476	531	Milwaukee, Wisc.	172	99	693	1061
179	56	949	320	Minneapolis, Minn.	113	96	515	909
25	40	171	264	Montclair, N. J.	..	..	..	..
59	66	269	294	Mt. Vernon, New York	..	..	..	..
41	44	381	303	New Bedford, Mass.	..	..	..	..
97	47	454	235	New Haven, Conn.	..	..	..	..
0	0	0	0	New Orleans, La.	..	..	..	..
37	30	185	162	New Rochelle, N. Y.	10	16	40	82
878	679	5791	3659	Manhattan, Bronx, Rchd	..	..	..	..
62	37	556	221	Norfolk, Virginia	45	28	228	147
0	0	9	2	Oakland, Calif.	..	..	..	..
..	..	..	..	Omaha, Nebraska	65	63	389	504
33	38	130	150	Orange, New Jersey	1	0	5	4
130	87	583	518	Paterson, N. J.	14	2	33	31
..	..	..	..	Plainfield, N. J.	7	7	102	67
99	36	622	220	Portland, Maine	20	12	94	73
1010	380	..	1629	Portland, Oregon	96	160	779	1443
..	..	..	..	Reading, Penna.	3	20	14	78
..	..	..	..	Richmond, Virginia	55	37	360	802
223	24	1379	300	Rochester, N. Y.	..	..	..	..
36	31	..	141	Rockville Center, N. Y.	13	12	80	54
19	21	178	88	Salem, Massachusetts	4	0	25	9
359	50	1308	353	St. Louis, Missouri	23	18	196	265
365	105	1597	725	St. Paul, Minnesota	128	93	561	792
76	11	..	139	Schenectady, N. Y.	..	..	..	..
..	..	..	..	Seattle, Washington	203	236	1252	1666
..	..	..	..	Springfield, Mass.	37	70	203	401
34	36	207	175	Stamford, Conn.	..	..	..	..
..	..	..	..	Trenton, New Jersey	6	2	51	5
..	..	..	..	Utica, New York	9	3	30	24
313	313	1686	1261	Washington, D. C.	..	..	..	..
..	..	..	..	West Orange, N. J.	17	10	54	77
3	73	465	366	Wilmington, Delaware	4	35	50	167
121	67	902	391	Worcester, Mass.	..	..	..	..
73	94	344	364	Yonkers, New York	..	..	..	..
6048	3303	21,910	12,087	*Totals*	2883	2070	13,844	17,541
+83.1		+81.3		*Percent Change*	+39.3		—21.1	

*Permits are not total sales in each market since none are reported from suburban areas, which normally account for 20% to 60% of total sales in each market; nor are they an accurate index where enforcement is lax. Rightly used, however, they are a useful working index.

ABUNDANT HORSEPOWER
LANCASTER OIL BURNERS

HORIZONTAL ROTARY
DIRECT AND BELT DRIVEN
Burn No. 6 and No. 5 Fuel Oils
Fully Automatic - Semi Automatic
Manual - Hi Lo - Modulated
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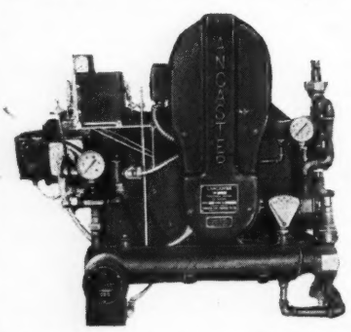

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Fueloil Supplies

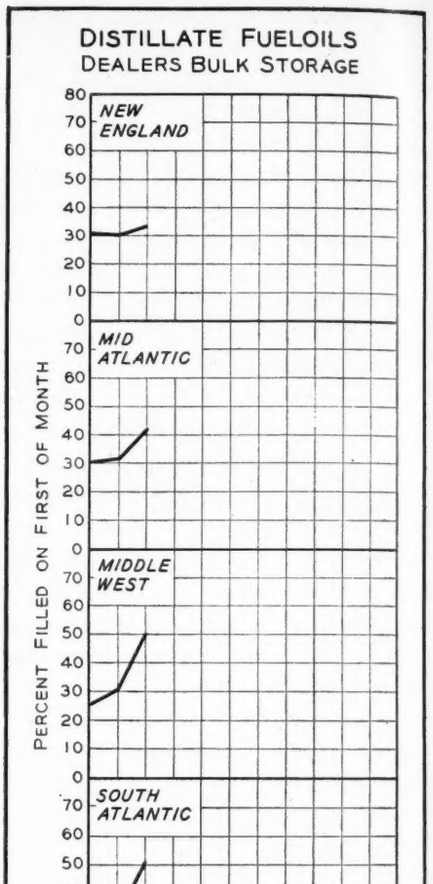
DISTILLATE FUELOIL supplies in storage at terminals, refineries and in transport at mid-August were some two million barrels below the same date the previous year, in the combined East, Midwest and Gulf areas. Most of this shrinkage was accounted for by Midwest states, with the East down a little and the Gulf up.

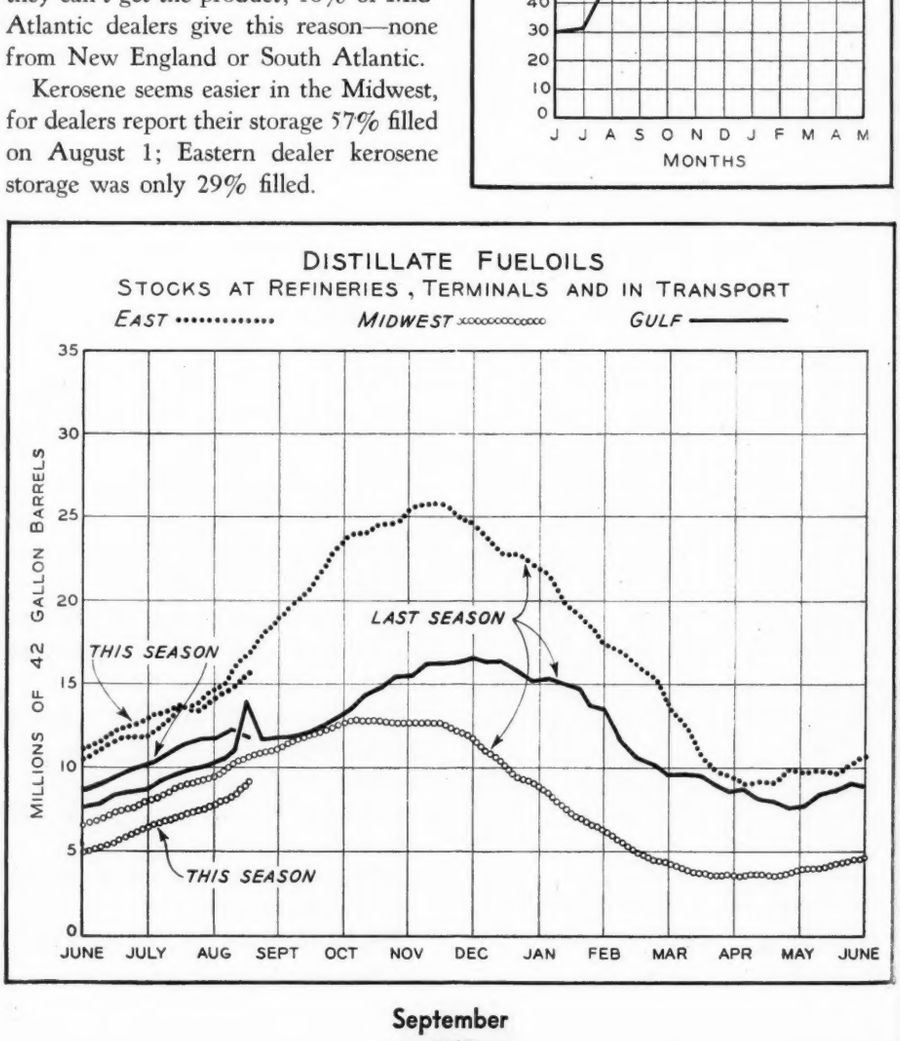
With demand next season expected to be 20% above last season, stocks should be about nine million barrels higher.

Dealer stocks on August 1 were about 43% of bulk capacity, against 31% on July 1, or a gain of around 2,302,000 barrels. However, they were considered less than "normal" for August by a half million barrels. Specifically, dealers along the Atlantic seaboard had on August 1 distillate stocks of 6,476,000 barrels; they consider "normal" to be 6,809,000. In the Midwest dealers had on August 1 about 1,955,000 barrels, against their estimated normal of 2,127,000 barrels.

Among Midwestern dealers, 85% say that their stocks are held down because they can't get the product; 18% of Mid-Atlantic dealers give this reason—none from New England or South Atlantic.

Kerosene seems easier in the Midwest, for dealers report their storage 57% filled on August 1; Eastern dealer kerosene storage was only 29% filled.


DISTILLATE FUELOILS
DEALERS BULK STORAGE
NEW ENGLAND
MID ATLANTIC
MIDDLE WEST
SOUTH ATLANTIC
PERCENT FILLED ON FIRST OF MONTH
0 10 20 30 40 50 60 70 80
J J A S O N D J F M A M
MONTHS


DISTILLATE FUELOILS
STOCKS AT REFINERIES, TERMINALS AND IN TRANSPORT
EAST
MIDWEST
GULF
MILLIONS OF 42 GALLON BARRELS
0 5 10 15 20 25 30 35
THIS SEASON
LAST SEASON
THIS SEASON
JUNE JULY AUG SEPT OCT NOV DEC JAN FEB MAR APR MAY JUNE

Service By Radio

Mobile Telephone Equipment Speeds Contact with Trucks on Jobs

by
A. E. Coburn

SHORTLY AFTER THE FIRST truck went out of the yard on the very first oilheating assignment, it is ten-to-one that somebody wanted to get in touch with the driver. One of the neighbors wanted service or oil, but there was no way to tell the driver to pick up the call while he was in the area. Like the arrow Longfellow "shot into the air"—the one that fell to earth, he knew not where—the truck was on the street and there was no way to trace it.

Dealers have devised extensive systems of call-ins for their drivers. They have tried scheduling calls so the dispatcher knows within a few minutes of the time the truck should be at a certain address. A call to the house, a message to have the driver call his office, and sometimes it worked. Too frequently the housewife forgot to tell the driver. Frequently, too, she was making gravy, changing the baby, or in the bathtub when the phone rang, and she resented being inconvenienced as an unpaid messenger for a firm that was paid to supply her with service.

But time and science march on. Today Longfellow could trace the flight of his arrow with radar, and oilheating companies are able to talk with their drivers, or at least to signal them to call in, without bothering their customers. Radio telephones are among the newest things to be added to the industry's rolling equipment. No census has been made of the number of mobile telephones in use in the oilheating industry, but most metropolitan areas have seen at least one dealer add this service since the equipment was first announced about a year ago. Though new and still largely experimental, dealers who are using mobile telephone equipment are enthusiastic about this unusual service.

Service offered by the telephone company ranges all the way from a simple signal system, which by means of a bell and a signal light tells the driver his plant is trying to get in touch with him, to a complete telephone service through which the driver can talk to any telephone subscriber in the country. In both systems the incoming call rings a bell to signal the driver in the conventional way. If he does not answer, an amber signal light appears on his dash to tell him that a call had come in. As yet there are no "private lines" for mobile equipment. Several subscribers (trucks) are on the same wave length, but any individual truck can be called by a combination of impulses which operate the signal system in that particular vehicle. Operation is similar to that of a dial telephone, but conversation is over the "party line" wave length.

A typical user of the signal system is Al Evans who operates the Kleen-Heet Oil Company in Brooklyn, N. Y. Six oil trucks and three service cars are equipped with signal lights and bells, but no transmitter. A call which rings the telephone bell and turns on the amber dash light tells the driver that his office is trying to call him. As soon as possible he gets to a phone and calls in for instructions. This service is fast and inexpensive, says Mr. Evans, and is used extensively. During February and March, with eight trucks equipped, the company used the system a little more than 100 times per month. There is less need in the summer months when fewer trucks are on the street.

Kleen-Heet Oil has customers in all parts of the city, though most of its business is confined to Brooklyn. Old customers in Manhattan and the Bronx still are served, and a few are as much as 20 miles away.

"It takes nearly an hour, through heavy traffic and over the bridges to reach these outlying customers," Mr. Evans explains. "All our trucks operate entirely in city traffic, and it is expensive to wait for them to return to the plant. We service the burners for a cafeteria chain in the city. One day recently a man had completed a Manhattan call and phoned the office for

Banner *displayed on truck tells of Radi-Onic system, which signals the driver by bells or lights when the office wants him to call in for instructions.*

A two-way *communication system is installed in this truck, containing receiving and transmitting equipment and permitting two-way conversations between truck and office.*

instructions. Two minutes after he hung up, a neighboring store in the cafeteria chain called for emergency service. Within another two minutes the service man had called us back and had the emergency call. The saving in time and expense in that one call paid for the month's charges on that installation."

Mr. Evans has advertised his "Radi-Onic" service widely. He used half-page newspaper space to announce the inauguration of the service, and circulated reprints of the ad to 6500 customers and prospects. Trucks carry banners announcing that "This truck is equipped in the new Radi-Onic radio signal system for faster, better service." The company also has used envelope stuffers with the monthly bills, calling attention to its radio signal service, and has followed with smaller newspaper space.

Rates will vary across the country, but in Brooklyn the monthly charge for this signal service is $12.50 for the first truck, and $9.50 for each additional installation. This charge allows a maximum number of calls before any charge for excess calls. There seldom are excess call charges except in the busiest seasons.

When in operation the signal system draws 8 amperes, which according to Mr. Evans does not require any special generating or battery equipment. A box about the size of a service man's tool kit contains all the radio equipment. Calls go through a special telephone operator at the central office.

Two-way telephone service finds its supporters among the small as well as the large dealers. Anthony Paparella, who operates the T. & N. Oil Burner Service at North Arlington, N. J., has a telephone installation on one truck and is planning to install it on his other two. Modern Heat and Fuel Company, one of the larger oilheating firms in Philadelphia, has two-way telephone service in four of its fleet, and may add another, but they do not see the need for installations in all trucks of the fleet.

"The publicity value alone is worth the $25 a month the installation costs," says Mr. Paparella. "I can be reached anywhere at any time, and I don't let the customers forget that we are in position to give them fast service. The time-saving factor is important, too. We'll put phones in our other two trucks as soon as they are available."

Individual Promotion

There is not complete agreement on the value of the publicity that attaches itself to radio telephone service. Robert H. Fleisher, vice president of Modern Heat & Fuel, reports that they have not publicized the service generally, fearing that the public would expect much more prompt service than it is possible to supply with present manpower and equipment. Modern does do individual promotion to customers who get service as a result of its mobile telephone installations. A letter to these customers explains the advantages of the equipment, and cites it as the reason the call could be handled so fast.

Among the advantages of radio telephone service, Mr. Paparella will tell you with a chuckle, was the service he got during the recent telephone strike. Because calls to and from mobile phones are handled by a special operator at the phone company's central office, he was able to use his equipment for any calls he needed to making during all the strike.

Modern Heat & Fuel at Philadelphia have mobile phone installations in the domestic oilburner service foreman's car, the installation foreman's car, one light oil truck, and one residual oil truck. Another installation probably will be made in the near future in the heavy oilburner service truck, but according to George Clement, manager, this probably will be all the mobile telephone equipment necessary. Five installations will be sufficient to take care of emergency service and delivery. The rest of the fleet will operate on the present system.

In the mobile two-way telephone installation the hand set instrument slides into a groove under the signal box. One light on the box lights to show that the set is turned on to receive and transmit. Incoming calls that are not immediately answered light the amber signal, the same as on the one-way system, to show that an attempt has been made to call the car. A service man or oil driver who may have been away from the cab when the call came in, calls the operator back to be connected with the telephone that was calling.

A button in the handle of the set is pressed to transmit and released to receive. When turned on for service, the set draws 8 amperes, the same as the signal system. While actually talking the set draws 38 amperes. This is a considerable drain on a car battery, and usually requires a larger generator on passenger cars and small trucks. Larger trucks and tractors usually require only that the

charging rate be set up, and the bus type generators on many of the newer trucks are ample for telephone service.

Charges for this service after installation is $15 a month rental on the equipment, plus $7.50 monthly service charge for the first unit and $2.50 per month for each additional installation. This makes the total $22.50 for the first mobile telephone and $17.50 for each additional one. For this the subscriber is allowed $6.50 worth of calls on the first installation without extra charge, and $1.50 worth of calls on each additional phone.

General and Dispatch Service

Two types of service are available. General service, through which the mobile phone can be used to call any telephone subscriber, is charged at the rate of 30 cents for three minutes. These general calls go through the long distance operator in the telephone company's central office much the same as any ordinary call is handled. Dispatch service is charged at the rate of 15 cents for each one minute call. In this type of service there is a direct line from the dispatcher's office in the plant to the mobile service operator in the central office. The mobile operator, receiving a call, simply connects the truck through the direct wire to the plant. Business calls seldom are more than a minute in length, which eliminates most of the possible disadvantage there might be in the "party line" nature of each wave length. It is seldom that a call is held up for an inconvenient time due to the "line" being busy.

Among the advantages that Modern cites for the two-way system is the ability to talk with a driver in the cab, and not require him to try to find a place at the curb to park several hundred gallons of oil while he finds a public telephone. With several installation crews working at the same time, the installation foreman can be reached by any of them at any time. If a tank crew strikes rock or a soil line, they don't have to sit on the edge of the hole and wait for the chief to come and check on them. They call the mobile phone operator, give the number of the car telephone and he can be on his way to pick a new location.

In the late spring Philadelphia got one of the worst snow storms in years. Surface transportation was snarled. Private cars were stalled in the middle of the road, and thousands of people wanted to call their offices and plants at the same time in the morning to say that they would be delayed. All telephone lines were busy for hours. That morning Modern's two telephone-equipped trucks stood in the yard and dispatched light and heavy oil trucks as they pulled away from the racks. Deliveries were being made long before it would have been possible to reach the drivers with orders in the normal way.

As with most new additions to overhead, it is not possible to calculate exactly the value of the mobile telephone or radio signal system. It has publicity and advertising value, and will continue to have until it becomes commonplace. It saves time and mileage, and thereby increases the speed with which service can be rendered and oil deliveries made. This in turn has a healthy effect on customer satisfaction, but it is harder to put a dollars and cents value on the benefits than on the cost.

There is no doubt the mobile radio telephone is here to stay, and smart dealers, both large and small, will be investigating its application to their particular needs.

Price Increases On Burner Parts

FACTORY PRICES of oilburner controls and pumps were advanced in the latter part of August by an amount representing a total added cost of three to four dollars to the burner manufacturer. Most will pass all or part of this increase along to the dealer. Wholesale burner prices have been coming down gradually since the high point reached in January; the drop has averaged about 13% in the seven month period.

It is interesting to note in the conversion burner price index table in the "Trends" section of this issue that retail prices have dropped only two percent, on the average, since the first of the year, while wholesale was taking the much larger drop. However, wholesale and retail prices now have almost the same index figures, 144.0 and 144.7, with January 1940 as the base point or 100. Wholesale prices bounced higher during the war and early postwar period than did retail, so wholesale had farther to drop to resume the normal or prewar relationship to retail.

"Gas Age" Survey Of Heating Restrictions

A NATIONAL SURVEY was recently completed by the magazine "Gas Age" to learn how widespread are restrictions on new home heating installations using gas fuel, and when these restrictions would be removed. The findings showed that, nationally, the gas utilities having 69% of all gas customers of every type still permit installation of gas central heating in new homes, while utilities having 41% of all gas customers of all types allow central heating installations in old homes.

In the strong manufactured gas areas of New England and Middle Atlantic states, gas utilities representing 91% of all gas users allow central heating installations in new homes, while but 37% will take new central heating users with old homes.

About 40% of present gas heating restrictions against home heating will be removed, or "unfrozen," by next February and an additional 20% by May 1949. The table shows residential gas customers of all types and the portion of those that are unrestricted as to installing home heating equipment.

NO RESTRICTIONS ON RESIDENTIAL HEATING

	Total Residential Gas Customers	*Reported In This Survey*	*Central Heating Equip. New Homes*	*Central Heating Equip. Old Homes*	*Room Heating Appliances New Homes*	*Room Heating Appliances Old Homes*
New England	1,464,510	714,489	599,020	435,814	485,508	545,535
Middle Atlantic	5,887,210	3,540,883	3,297,048	1,136,527	2,428,928	2,407,685
East North Central	4,681,370	3,444,612	902,541	92,717	927,590	370,621
West North Central	1,476,180	1,048,507	469,826	406,445	533,245	488,903
South Atlantic	1,297,250	511,910	479,764	458,697	479,596	478,029
East South Central	492,060	349,204	243,493	183,656	335,261	332,861
West South Central	1,550,090	915,108	915,108	914,508	915,108	914,508
Mountain	344,250	156,094	153,667	153,667	154,494	154,494
Pacific Coast	2,256,080	996,761	994,574	994,574	994,574	994,574
United States	19,449,000	11,677,568	8,055,041	4,776,605	7,254,304	6,687,210

Total Residential Gas Customers, Estimated as of Jan. 1, 1947, Include Utility Customers Only (No Bottled or Tank Gas)

99 Gallons Per Truck Mile

With Numerous Loading Points, Baerenklau Gets High Efficiency

by
Robert Gray

IN THE ANNUAL STUDIES for the January issues of FUELOIL & OIL HEAT, fueloil distributors from all sections of the country send their operating figures for the year just closing. One of the most practical measurements of effective operation in fueloil distribution is the number of gallons of distillate heating oil delivered for each mile that the trucks run.

In recent years this has been averaging around 30 gallons. That would not be considered good performance by large companies in thickly settled and thickly oilheated markets. It does include results from such firms, but it also includes small country dealers and small city dealers whose 300 customers may be spread over a whole metropolitan area. Nonetheless, 30 gallons to the mile is about what happens in the industry as a whole.

So when an outfit like Baerenklau & Co. of Brooklyn is found to be delivering around 100 gallons to the mile . . . it was 99 last year and running a little better so far this year . . . the performance invites looking into, with the hope that the reasons are not too elusive.

Actually, the principal reason is discovered after a few minutes spent in the fueloil operating section of the office. A large wall map shows the area covered by the company—Brooklyn, Queens and a small part of Nassau County—and it also shows with large map tacks the 14 loading points where any of Baerenklau's nine trucks can pull under the spill and fill 'er up.

Not one of the bulk plants is owned by the company. Like many another fueloil distributor in the New York area, including some of the very largest, Baerenklau prefers to pay the extra 3/10¢ per gallon in cost price and let someone else own the bulk plant. He knows that five-sixths of that price difference would be used to pay the running expenses of a plant if he had it, and more important from his viewpoint, if he owned a plant he would feel tied to the one loading point, regardless of how many miles it might be from some of his customers.

Given the situation shown on the map, with the 14 loading points, and adding an operating management above the average for alertness and penetration, it is understandable that a loading and dispatching system would be devised to keep all trucks operating at near peak efficiency. For example, all trucks start out with a string of drops that will just finish their load as they approach one of the outer loading points. Then the driver has a batch of tickets to use up his second load and again land him near another fill point.

Baerenklau has not attempted to keep his customers closely concentrated in a small area, as have some of the other successful operators in the New York area. Selling a little over five million distillate gallons to about 2,700 customers, he has these customers fairly well spread over the two-county area that is Brooklyn-Queens, yet he gets just as short mileage as the concentration specialists—again, because of unlimited loading points.

Reference to the accompanying table will bring out a number of interesting points to show how the company makes such favorable records. In the upper section of the table the first column, "Truck Days" refers to the total of all days worked by the combined fleet during the month. There are nine trucks in the group, but rarely all working at once. The most recent additions to the fleet are four Brockways of 2,200 gallon size.

The second column, "Number of Loads" develops an average of 2.6 loads per truck per day, year round, showing as low as 1.9 loads in June and as high as 2.9 loads in January. The third and fourth columns are clear; dividing the fourth by the third finds about two and one-half miles of total truck operation per delivery. The next three columns showing regular and overtime drivers' hours indicate how liberally overtime is used, amounting to 15% of total time during the year. With the exception of December, January and February there would be plenty of idle trucks so other drivers could be used to avoid paying overtime, but the company prefers, as a policy to pay some overtime

Monthly Analysis of Delivery Operation

1946	Truck Days	Number Loads	Number Dely's.	Truck Miles	HOURS Reg.	HOURS Ovrtm.	HOURS % Ovrtm.
January	186	535	3,663	9,034	1,488	357	19
February	178	488	3,442	8,396	1,422	317	18
March	114	287	2,063	5,145	908	113	11
April	106	264	1,849	4,667	836	94	10
May	74	165	1,201	2,969	586	48	8
June	38	74	610	1,654	300	23	7
July	44	93	738	1,899	352	38	10
August	37	79	562	1,672	295	34	10
September	37	94	644	1,759	296	47	14
October	65	162	1,173	2,875	520	68	12
November	108	281	2,076	5,200	863	156	15
December	176	500	3,661	8,864	1,392	363	21
	1,163	3,022	21,682	54,134	9,258	1,658	15

Gallons Delivered

	Month's Total	per Truck per Day	per Truck Hour	per Truck Mile	per Drop	Labor Cost per Gallon
January	910,873	4,897	493	101	249	.304¢
February	816,674	4,588	469	97	237	.328
March	511,577	4,488	500	100	248	.281
April	456,382	4,306	490	98	247	.281
May	298,126	4,028	469	100	248	.289
June	157,062	4,133	485	95	258	.280
July	184,098	4,184	472	97	249	.292
August	150,356	4,064	457	90	267	.302
September	162,406	4,389	473	92	252	.296
October	292,377	4,498	497	102	249	.279
November	505,808	4,683	496	97	244	.294
December	903,066	5,143	510	101	244	.300
	5,348,805	4,450	490	99	247	.298¢

to keep average driver incomes up and to round out loads to best advantage.

In the lower half of the table the first column represents monthly and annual gallonage of distillate delivered. The nine trucks averaged about six hundred thousand gallons each, well above the industry average.

The eight columns that you have noticed so far all show the seasonal fluctuation common to the fueloil business . . . the feast and famine conditions. The remaining five columns in the second table serve to highlight the results of able management, in that the company was able to get almost as effective operation, by every measurement, in the leanest months for volume as in the fattest. Under summer conditions it is virtually impossible to retain the tempo, the drive, that accompanies the winter peaks. Also, in summer the drops are normally more scattered.

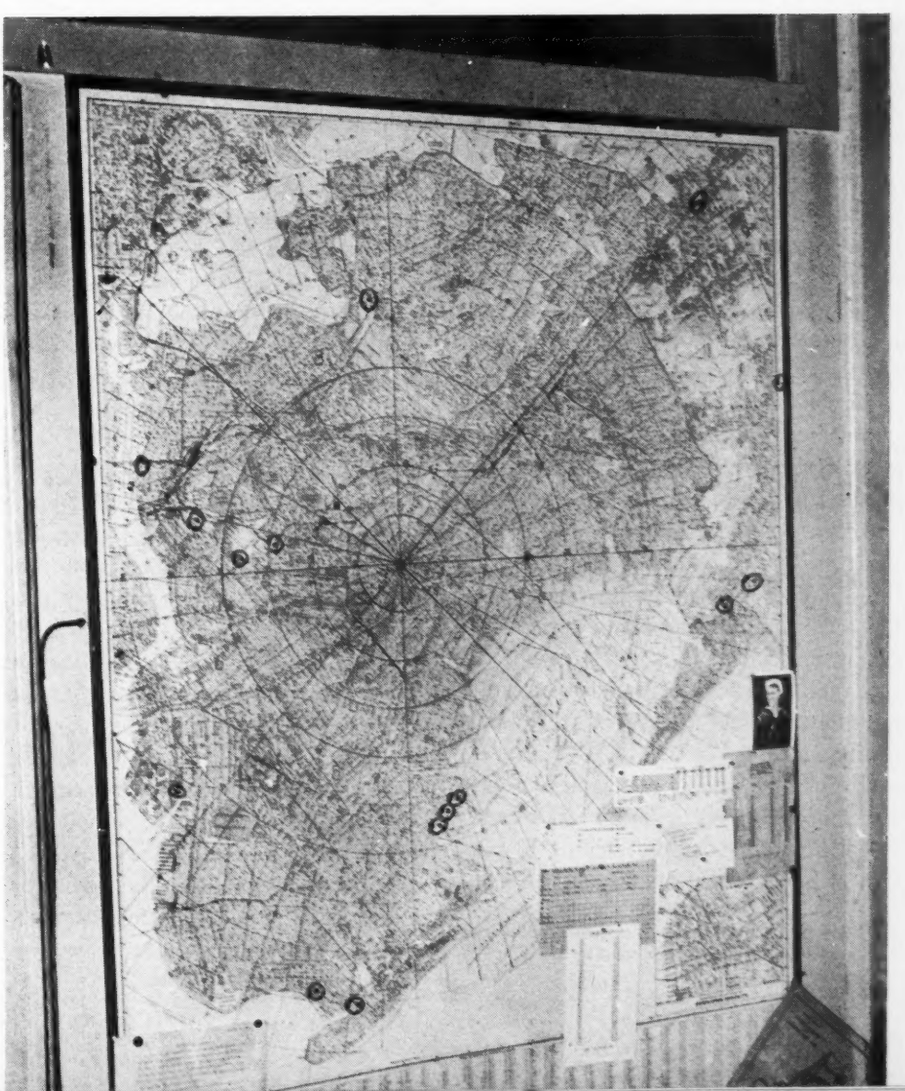
The gallons delivered per truck per day shows, it is true, 20% less in May, the low point, than in December, the high point, but much of this difference is due to overtime, for in December trucks averaged 9.7 hrs. a day, and in May they averaged 8.6 hrs. The number of gallons delivered per hour of truck operation varied between 469 in May and 510 in December, or only 8% difference in that efficiency yardstick between best and worst operating seasons. The next two columns, gallons per mile and gallons per drop, disclose equally small deviations above or below the year's average—a remarkable performance.

The final column, drivers' wages per gallon delivered, reports a maximum variation of only 7% between best and worst and most of this is accounted for by peak period overtime.

Baerenklau master-minds. *Left column, Al G. Baerenklau, president; above left, Frank A. Baerenklau, fueloil sales, Al Rich, general sales manager, and Ed Baerenklau, manager of service and fueloil operations. Henry Baerenklau, not shown, is vice-pres.*

At right is one of four new Brockway trucks with 2,200 gallon tank capacity.

Below is the wall map of Brooklyn and Queens showing radial zoning system and fourteen loading points for trucks.



Carbon-Hydrogen Ratio

Simplified Combustion Calculations For Petroleum Fuels

by
Henry R. Linden*

THERE HAS LONG BEEN a need for a simplified method of combustion calculations covering a wide range of both the types of fuels and the operating conditions. The existing methods, theoretically sound and technically accurate, usually necessitate the use of complex equations, frequently calling for trial and error solutions. The existing graphical methods, although simple and reliable, usually have two basic shortcomings. Either they are applicable only to a given type of fuel, i.e., given chemical composition, or they contain simplifying assumptions. In either case, their application is limited to a relatively narrow range of both fuel types and operating conditions and their misapplication may lead to serious errors.

Summary of Technical Paper

The following is a review and a summary of a paper entitled "Combustion Calculations for Hydrocarbon Fuels"[1] which appeared in the April and May issues of *Chemical Engineering*. This paper presents a simplified, graphical method of computing the following values: heat content, heat of combustion, theoretical flame temperatures corrected for the dissociation of water vapor and carbon dioxide, and theoretical air requirements of hydrocarbon fuels; amount of excess air, heat content and stack losses in the flue gases, the stack losses being corrected for air temperature, fuel temperature and humidity. The method is based on the use of carbon-hydrogen ratio, by weight, of the fuel as the correlating factor and thus presents a coordinated tool applicable to a wide range of both the hydrocarbon fuel types and operating conditions.

In this new system of combustion calculations the usual limitations of simplifying assumptions such as a linear variation of heat content of the flue gas with flue gas temperature[2] were avoided by employing modern methods of correlating thermo-chemical data and of subsequent reduction to desirable mathematical forms. The obvious drawbacks of the complicated mathematical expressions resulting from such a procedure were overcome by presenting them in nomographic form. Furthermore, the use of obsolete specific heat and dissociation data was discarded. The specific heat and heat content data of air and the flue gas components, for instance, are based on spectroscopic measurements.[3] The temperature range of the system is sufficiently wide so that it can be used in efficiency calculations for jet engines and gas turbines and for calculation of flame temperatures.

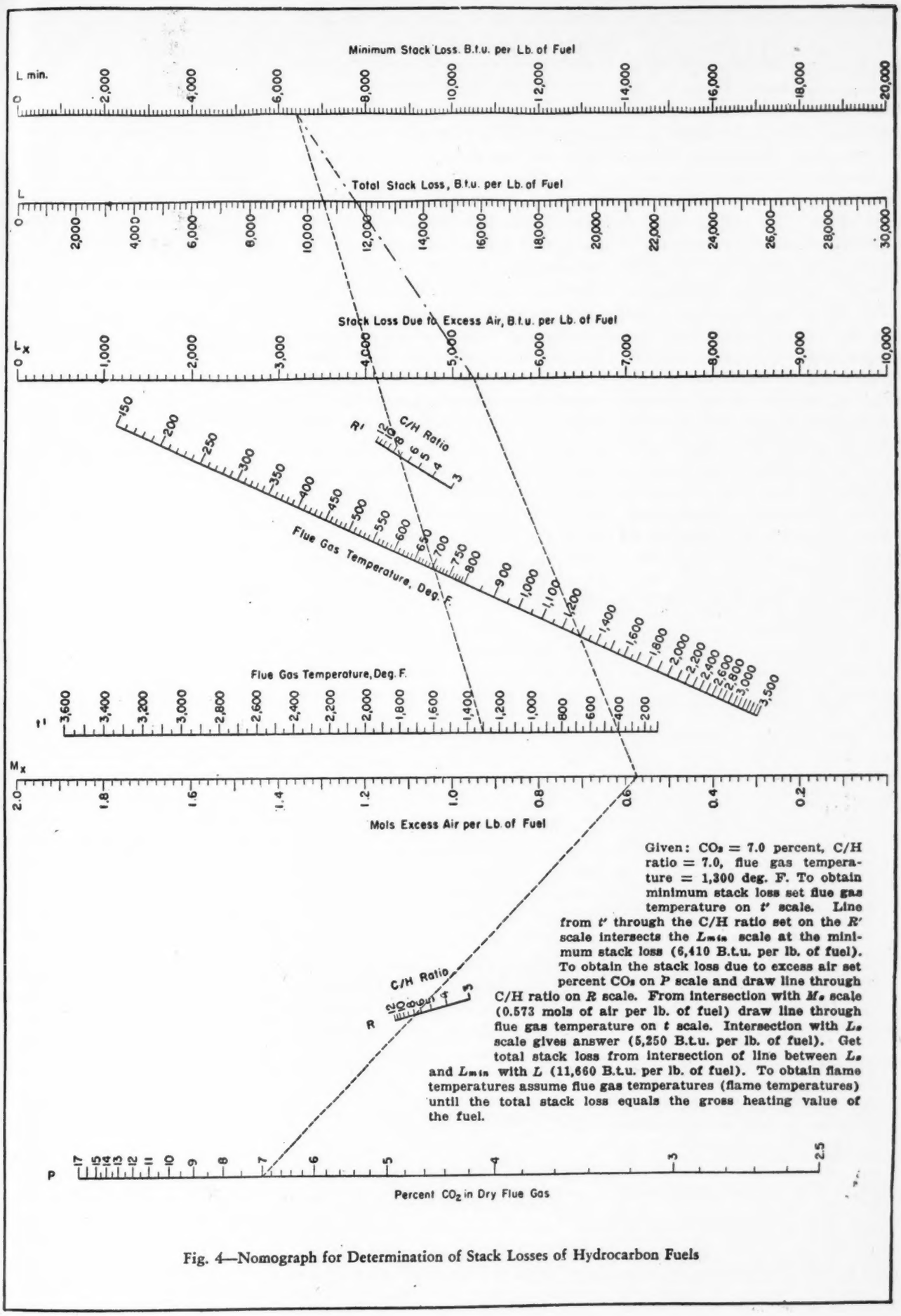
Basis for Combustion Calculations

It has been previously shown that the C/H ratio is an excellent basis for combustion calculations as they apply to hydrocarbon fuels, since such fuels, mainly petroleum products, have a low content of non-hydrocarbon constituents and since their combustion may be carried to completion with relative ease. Previously the main disadvantage of the use of the C/H ratio as the basis was the difficulty in obtaining it with sufficient accuracy by simpler methods than ultimate analysis. This difficulty has now been largely eliminated for most liquid petroleum fuels by a new empirical correlation for fractions within the boiling range of 300° to 800°F. The criteria used in this correlation are the 50 percent ASTM boiling point, the 10-90 percent ASTM distillation slope, the API gravity, and the ASTM aniline point. Its accuracy is estimated to be within 3 percent maximum error and 1 percent arithmetic average error. A simplified correlation between the Diesel Index (0.01 x API gravity x ASTM aniline point), the 50 percent ASTM boiling point and the C/H ratio of commercial fuel oils and related petroleum fractions is also reported. Both of these correlations are based on the correlation for pure hydrocarbons by Cauley and Delgass.[4] (An improved version of the simplified correlation based on additional data has been published by the same authors.[5]) In addition to giving the new method for obtaining the C/H ratio from standard physical tests, the paper under discussion also reviews other empirical methods which can be used when the new correlation is not applicable. For many types of residual fuel for instance, the ASTM aniline point is not obtainable and the U. O. P. "K" factor[6] can be used to estimate the C/H ratio with sufficient accuracy.

The correlations of specific heat, heat content, and heat of combustion of petroleum fractions with the C/H ratio were developed to integrate the entire system of combustion calculations on the basis of the C/H ratio. While previous correlations for these properties are available, the new methods developed here allow a direct interrelation of the calculations with those of other functions also made on the basis of C/H ratio. Other correlations developed for this purpose include: (1) heat content of flue gas constituents and air with absolute temperature; (2) air requirements and excess air with C/H ratio and percent carbon dioxide in the dry flue gas; (3) minimum stack loss and stack loss due to excess air with the percentage of carbon dioxide in the dry flue gas, flue gas temperature, and C/H ratio of the fuel; (4) dissociation of carbon dioxide and water vapor for the case of combustion of hydrocarbon fuels with theoretical air requirements, with flame or flue gas temperature and the C/H ratio of the fuel; (5) maximum flame temperatures with the C/H ratio and the heating value of the fuel.

The above correlations are all presented in the form of equations which may be used as such. For convenience and ready use, nomographs have been prepared to solve the equations for stack losses, maximum flame temperatures, air requirements, and excess air. Nomographs are also presented to correct for temperature and humidity of air supply and for the temperature of the entering fuel. The last two nomographs are especially useful in heat balance calculations for the cases of

*Socony-Vacuum Laboratories, Technical Service Department, Brooklyn 22, N. Y.



Given: CO_2 = 7.0 percent, C/H ratio = 7.0, flue gas temperature = 1,300 deg. F. To obtain minimum stack loss set flue gas temperature on t' scale. Line from t' through the C/H ratio set on the R' scale intersects the L_{min} scale at the minimum stack loss (6,410 B.t.u. per lb. of fuel). To obtain the stack loss due to excess air set percent CO_2 on P scale and draw line through C/H ratio on R scale. From intersection with M_x scale (0.573 mols of air per lb. of fuel) draw line through flue gas temperature on t scale. Intersection with L_x scale gives answer (5,250 B.t.u. per lb. of fuel). Get total stack loss from intersection of line between L_x and L_{min} with L (11,660 B.t.u. per lb. of fuel). To obtain flame temperatures assume flue gas temperatures (flame temperatures) until the total stack loss equals the gross heating value of the fuel.

Fig. 4—Nomograph for Determination of Stack Losses of Hydrocarbon Fuels

pre-heated air, pre-heated fuel, and steam atomization.

In general, this integrated system of combustion calculations based on the C/H ratio and the latest spectroscopic and thermo-chemical data is applicable to all hydrocarbon fuels burned under conditions normally encountered. For most liquid hydrocarbons fuels, the C/H ratio can be obtained by simple empirical methods of sufficient accuracy as not to affect the basic correlations. The only other major source of error is the assumption that the fuel is 100 percent hydrocarbon. For gaseous and distillate fuels this assumption is generally justified, while for residual fuels increasing deviations are unavoidable. Simple correction factors for such fuels can be applied and the method of their application becomes apparent from a study of the correlation in question. In case of heating values, the correlation is of sufficient magnitude and regularity (except for high sulfur content fuels) that the device of the "equivalent pure hydrocarbon heating value" may be used to minimize errors in efficiency and flame temperature calculations.

As an example, Figure 4 from the paper is reproduced here. It serves to calculate stack losses for all types of hydrocarbon fuels up to a C/H ratio of 12 and for a flue gas temperature range from 150° to 3500°F. The correlation on which the nomograph is based was developed by assuming that the air supply and the fuel are dry and at 60°F., the fuel is 100 percent hydrocarbon, the fuel is completely converted to carbon dioxide and water vapor, and the carbon dioxide and water vapor do not dissociate. Correction for higher fuel and air temperatures and humidity (or steam injection) can be made by the nomograph of Figure 5. Dissociation reaches an order of magnitude that will affect combustion calculations at 3000°F. and no excess air, but with 20 percent excess air or more, errors due to dissociation up to flue gas temperatures of 3500°F. should be well within the limits of accuracy of the correlation. The maximum deviation of the correlation from rigorous methods of calculation is 2 percent in the flue gas temperature range from 250° to 3500°F. For calculation of gross thermal efficiencies (i.e., neglecting radiation, conduction, and convection losses) the corrected stack loss should be subtracted from pure hydrocarbon gross heating value of the fuel given in Table II and the result divided by this heating value and multiplied by 100. The nomograph of Figure 4 can also be used to calculate flame temperatures in the presence of excess air as indicated on the instructions for its use.

Reprints of the full text of original paper may be obtained by writing to Mr. T. G. Roehner, Socony-Vacuum Laboratories, Technical Service Department, 412 Greenpoint Avenue, Brooklyn 22, New York.

Table II—Heating Values of Liquid Petroleum Fuels at 60 Deg. F., Constant Pressure, in Btu per Lb.

	FUEL OILS		PURE HYDROCARBONS	
C/H Ratio	Lower (Net) H.V.	Higher (Gross) H.V.	Lower (Net) H.V.	Higher (Gross) H.V.
6.0	18,640	20,000	18,640	20,000
6.2	18,540	19,860	18,540	19,860
6.4	18,430	19,720	18,440	19,730
6.6	18,320	19,570	18,350	19,610
6.8	18,210	19,420	18,270	19,490
7.0	18,110	19,280	18,190	19,370
7.2	18,010	19,150	18,120	19,270
7.4	17,910	19,030	18,050	19,180
7.6	17,840	18,910	17,980	19,090
7.8	17,720	18,800	17,920	19,000
8.0	17,640	18,690	17,860	18,920
8.2	17,570	18,590	17,810	18,840
8.4	17,500	18,490	17,760	18,770
8.6	17,430	18,400	17,720	18,710
8.8	17,360	18,310	17,680	18,650
9.0	17,300	18,230	17,640	18,590
9.2	17,240	18,150	17,600	18,530
9.4	17,180	18,070	17,570	18,480
9.6	17,120	18,000	17,540	18,440
9.8	17,070	17,930	17,520	18,400
10.0	17,030	17,870	17,510	18,370

REFERENCES

1 Linden, H. R. and Othmer, D. F., Chemical and Engineering, April 1947, p. 115, May 1947, p. 148.

2 Edgeworth, R. and Johnstone, Fuel, 24, 21, (1945).

3 Heck, R. C. H., Mechanical Engineering, Jan. 1940, p. 9.

4 Cauley, S. P. and Delgass, E. B., Oil and Gas Journal, July 27, 1946, p. 166.

5 Cauley, S. P. and Delgass, E. B., Oil and Gas Journal, July 19, 1947, p. 83.

6 Watson, K. M., Nelson, E. F., and Murphy, G. B., Industrial and Engineering Chemistry, 24, 211, (1932).

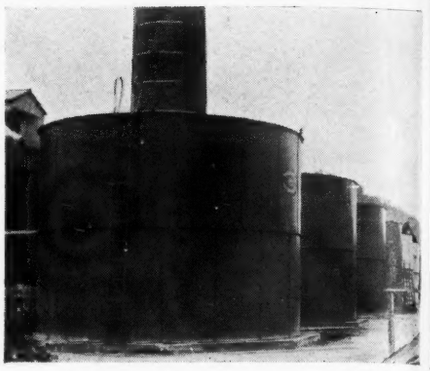
Fueloil Deliveries By Months

CONSIDERABLE RECENT INTEREST has been shown in fueloil deliveries by months for the obvious reason that suppliers want to get as much oil as possible moved into dealer and consumer storage before the peak heating season starts in the month of December.

Aaron Rich, executive secretary of the Fuel Oil Distributors Ass'n of New Jersey in a recent bulletin reported a result of a poll of his members on this question. Then a major company made a record of three year direct deliveries in New England, finding variations between the seasons due to weather. The two columns in the accompanying table show Rich's figures for New Jersey and the New England three-year average.

Fueloil Deliveries By Months

		New Jersey *New England*
June	4%	
July	2	7.7%
August	2	
September	3	3.6
October	6	6.0
November	9	10.5
December	16	15.5
January	20	16.4
February	16	14.9
March	12	15.0
April	6	7.1
May	4	3.3



Where Some of the Fueloil Went

The National Supply Company's Spang-Chalfant Division pipe mill in Etna, Pennsylvania, was shut down completely for 32 full days of 24 hours each in the three months of last January, February and March because of the natural gas shortage. This loss, together with curtailed production on other days for the same reason, cost the company exactly one-half of its normal production of pipe for the three-month period.

This cannot happen next winter because National Supply has constructed six oil storage tanks and already has them filled with 270,000 gallons of fuel oil. This amount is equivalent to 36 million cubic feet of natural gas. A concrete dyke, divided into three compartments, was built around the six tanks to confine the oil to a restricted and safe area in event of a leak.

Oil Piping for Pressure Burners

Care in Planning the Fuel Feed Avoids Pump Trouble Later

by
J. W. Schulz

INEXPERIENCED IN OILHEATING though they may be, good pipefitters easily can handle the problems of piping fueloil storage tanks and pressure burners. The prerequisites for satisfactory piping work include complete instructions and the determination, tools, and materials that avoid leaks. Usually the instructions are given the pipefitters by an installation and service manager, or in small organizations by the dealer himself.

Familiarity with local rules and regulations related to oilburners is a "must" for the man who prepares the pipefitters' instructions. Knowledge of which regulations are enforced and which are disregarded is valuable in many localities. The oddities of local oilburner regulations are disregarded sensibly in certain towns and cities, whereas elsewhere they are enforced with fanatical thoroughness.

Long disregarded in one city, for example, was the dangerous requirement that the vent line of the fueloil tank extend two feet above the highest point of the building, including presumably the top of a church steeple. Strictly enforced today in a few areas close to New York, is the idea that vent lines must be of 2" pipe size, not the 1¼" size considered safe and suitable by most of the engineers capable of commenting on vent line sizes, and not the ¾" size which has been used by certain dealers without penalties of any kind to the dealers or the burner owners, notwithstanding the preference of the National Board of Fire Underwriters for a minimum vent size of 1¼".

Special oil line valves, having fusible links or other heat-sensitive arrangements intended to cause valve-closure in event of boiler room fires, must be installed in many localities.

A wire which contains a fire-sensitive link is stretched over the burner and in front of the boiler or furnace, according to the rules of one city; a fire will cause the link to part, releasing the wire and permitting a weight-and-lever oil valve to snap closed. The special valve is located at the tank for inside tank installations, and at the basement wall in the suction line, for outside tank installations. One local ordinance aimed for safety, brings in the odd point that, of all things, to be considered safe an oilburner installation must have a smokepipe draft regulator.

Other safety regulations reveal the authorities' preference in firebox sizes, combustion volume for different gph rates, smokepipe sizes, and combustion test results. All-in-all, a dealer new at installing oilburners in a certain locality should learn fully not only the letter of the local laws which relate to burners, but also if possible the opinions and preferences of the men who might be interested in the completed installations and who might decide whether or not an installation "passes."

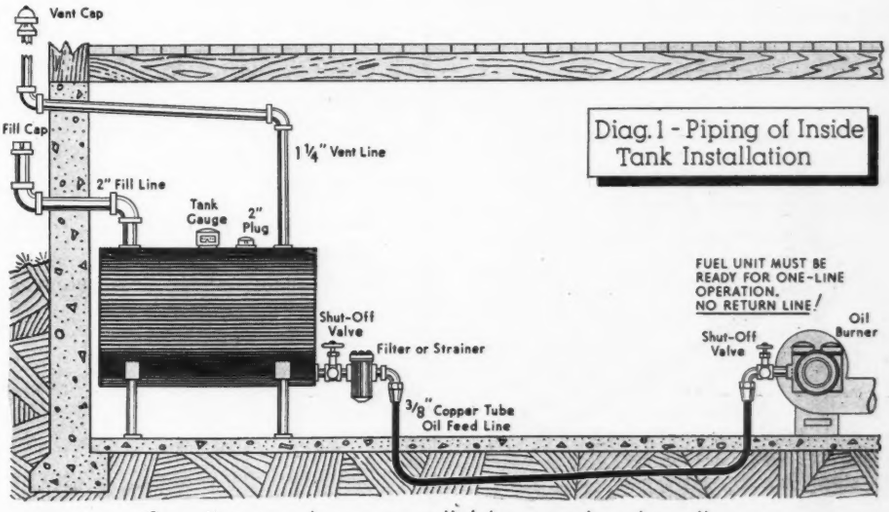
Differences of opinion regarding satisfactory oil piping is not confined to the law-makers interested in burners, but extends also to burner experts.

The accompanying list of "*Don'ts*" represents good practice according to most oilheating experts, but on a point or two draws violent opposition from a few. Here is one point, however, on which all pump and fuel unit manufacturers and all pressure burner manufacturers seem agreed: don't fail to provide a return line for an outside tank installation. Here's the temptation connected to this, which has been known to experts for many years.

A dealer, perhaps inadvertently, installs a half a dozen pressure burners connected to outside tanks and uses the "one-line" fuel feed system, failing to install return lines for the burners. He gets the burners started, and finds they work beautifully. When later someone points out that outside tank installations must have return lines, the dealer argues against this, citing that his "one-line" burners simply could not work better as far as fuel feed is concerned. All his outside tank jobs, says the dealer, will be hooked up for "one-line" operation. He sees no need to go back to the half dozen burners and install return lines for them.

The easiest way to settle the argument is to wait five years or so, then talk to that dealer again. By that time, the trouble he has had with "one-line" oil feed systems applied to outside tanks will have driven him to "two-line" systems for all his outside tanks. Also by that time, probably you will have met up with another man new in the burner business, who has "discovered" that on his outside tank installations no return lines are needed for satisfactory operation.

The fact is that the "one-line" oil feed system often works satisfactorily for an



Diag. 1 - Piping of Inside Tank Installation

Generally a return line is not installed for an inside tank installation. The "One-Line" fuel feed system is used for most inside tanks.

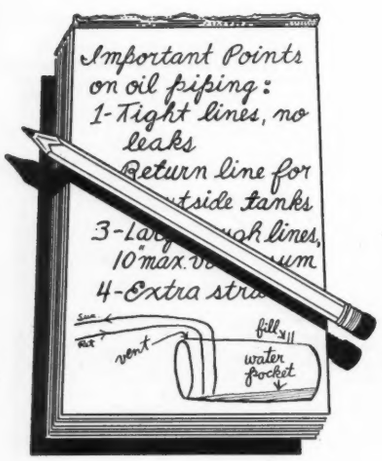
outside tank, especially when the burner is but a year or two old. But a few dozen burners piped that way simply give too much trouble in the long run.

Diag. 1 shows the piping of a typical inside tank installation. Seven feet minimum distance (measured horizontally) between the tank and the burner or the boiler or furnace usually is considered satisfactory from a safety viewpoint. If convenient, connect the 2" fill line and the 1¼" vent line to opposite ends of the tank, or at least some distance apart. Slope the vent line downhill slightly towards the tank so that any fueloil that reaches this line will drain back to the tank. A skillful pipefitter gains sufficient slope by cutting a "crooked thread" on one of the pipes.

Certain dealers locate the vent cap only high enough so that ice and snow very definitely will not cover it, while others standardize on vent cap height of six or seven feet. The vent cap should be at least two feet from any opening (window, door, or ventilator) in the building.

An excellent and easily-cleaned filter or strainer, selected by the dealer and usually purchased separately from the oil-burner, should be installed at the oil tank as the drawing indicates. The shut-off valve at the tank permits cleaning this filter or strainer, or replacing a filter cartridge, and tending to any leaks in the oil line to the burner.

The oil line to the burner is of ⅜" O.D. copper tubing, according to the standard practice of many dealers, although certain dealers use ½" O.D. copper tubing. The wall thickness of the copper tubing should be at least .049". Tubing as small as 5/16" O.D., and even ¼" O.D. has been used for one-line feed sys-



Don't plan an installation until you have learned all the local and national rules and regulations which will apply to the installation. Aim from the start to avoid "violations."

Don't fail to obtain the owner's approval of the location you select for the inside or outside oil storage tank. (At the same time, have him approve the locations you select for the room thermostat and the main switch that turns the burner on or off.)

Don't omit a good tank gauge; whether the tank is inside or outside, it needs a good gauge.

Don't use a "one-line" oil feed system for an outside tank. Every outside tank installation should have a return line.

Don't invite loss-of-prime where an outside tank is lower than the oil burner. Install a foot valve or an oil line check valve, or use some other arrangement to hold the prime dependably.

Don't make the vent line smaller than 1¼" or the fill line smaller than 2".

Don't skip installing a highly effective filter or strainer in the oil feed line or suction line, in addition to the filter or strainer which is part of the burner. Usually, you have to buy the extra strainer or filter; it does not come with the burner.

Don't make it difficult to service the extra strainer or filter you provide; install a shut-off valve where it will be needed by the service man.

Don't forget to install any unions and shut-off valves needed near the burner to permit easy servicing of the pump or fuel unit on the burner.

Don't omit a 2" cap or plug which can be removed from over an outside or inside tank to pump out the tank or measure the oil using a stick.

Don't locate an inside tank within seven feet (measured horizontally) of the burner or the boiler or furnace.

Don't "cross-connect" the vent line of an outside tank with the return line of a burner; the return line should not connect to a tee in the vent line.

Don't cause leaks by using cheap material or poor workmanship.

Don't, if you can avoid it, install an anti-syphon device which may increase a pump's air-binding tendencies. But don't fail to become familiar with the local requirements concerning anti-syphon devices for outside tanks higher than the burners.

Don't select the location for an outside tank hastily without taking into consideration the possibilities of damaging the building foundation or encountering rock, water, quick-sand or other poor support, or water pipes.

Don't slope the vent line the wrong way or run it level. Slope it downward towards the tank. The slope may be slight, but any oil that reaches the vent line should drain back quickly to the oil tank.

Don't damage a fuel unit by operating it without a return line when it is set up for "two-line" operation.

Don't connect oil lines to the burner in a way that places a strain on the pump and tends to cause poor alignment between the pump shaft and the motor shaft.

Don't connect the oil lines to the burner in a way that prevents easy removal of the gun tube assembly. Keep the oil lines clear of any burner parts which a service man may have to adjust or remove.

Don't fasten the oil lines to the basement ceiling or to posts, beams or partitions which may transmit pump hum, causing it to be heard upstairs.

Don't invite air-binding trouble in a "one-line" fuel feed system (no return line) by having pronounced high points in the feed line; try to have the feed line go uphill steadily towards the burner.

Don't engineer outside tank installations for vacuums higher than 10" at the pump inlet connections; install suction and return lines of adequate size.

tems on inside tank installations, but in the opinion of most experts such small sizes should not be used. They lack the mechanical strength of the larger sizes, and may plug with gum or sludge.

To cheapen installations, some dealers omit the shut-off valve shown at the burner end of the feed line. When this is done, it is difficult to remove the oil pump or fuel units, or clean the strainer in a fuel unit, without spilling more fueloil on the floor than pleases a neat service man.

Notice that the oil feed line in Diag. 1 runs uphill towards the burner, and has no high points in which air can pocket. Failing to arrange the line this way does not certainly lead to trouble. Yet, oil feed lines which have high points have caused many service calls in certain homes, because of air-binding of the fuel units. The trouble occurs with certain fueloils and not with others, and is increased by especially high oil line temperatures, such as are encountered with burners in the jackets of boilers and furnaces.

If he runs his oil feed lines uphill and downhill, a dealer may never cause air-binding trouble, for his oil line temperatures and the fueloil used in the burners may not be right for the trouble. But he can avoid the trouble definitely, for all fueloils and for high oil line temperatures, by running his feed lines as Diag. 1 indicates.

The bottom of an inside oil tank should not be considerably lower than the pump or fuel unit on the pressure burner, if the one-line fuel feed system is used. Here are the reasons why two-line fuel systems (return lines) are used by certain dealers for all or part of their inside tank installations:

1. The dealer installs a return line because the pressure burner is equipped with a two-stage fuel unit, and he aims to gain all the advantages of using such a fuel unit. Without a return line, a two-stage fuel unit gives no advantages over a single-stage fuel unit.

2. A return line is installed because on an exceptional installation the bottom of the inside oil tank is two feet or more below the pump or fuel unit on the burner.

3. Or, a return line is used because on the particular installation the tank is located a relatively great distance, say 35 ft. or more, from the burner.

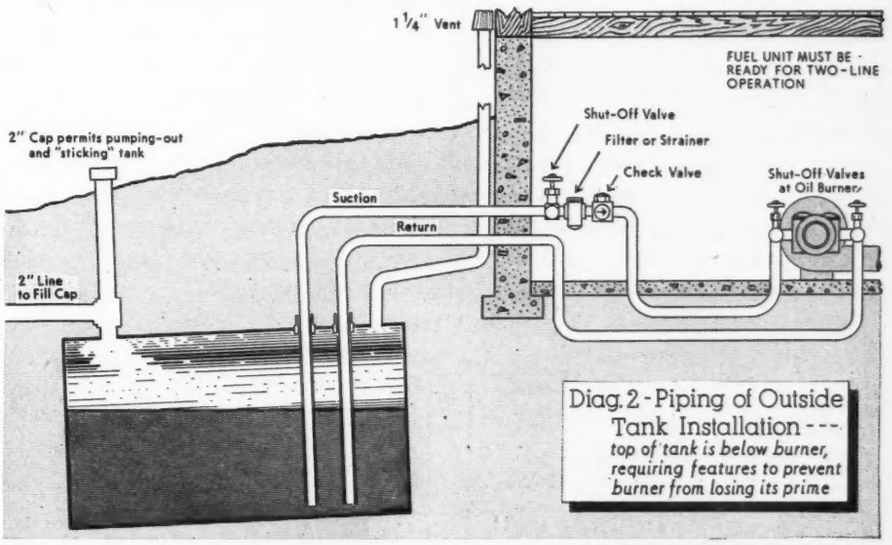
On any installation where the oil feed line will not give the burner a full flow of oil freely by gravity, a cautious dealer considers installing a return line. The two-line oil feed system provides more dependable handling of the oil by the burner, and avoids air-binding troubles which under certain conditions come of using the one-line system.

On many outside tank installations, the burner losing its prime is no problem, since the top of the oil storage tank is above the oil pump or fuel unit, and the bottom of the tank is but slightly lower than the burner. In Diag. 2, however, the top of the oil tank really is lower than the fuel unit on the burner. This calls for the use of methods for preventing the burner from losing its prime. Two principles to prevent loss of prime are used in the piping shown in Diag. 2. First, both the suction line and the return line end near the bottom of the oil tank; air cannot enter the open end of the return line when the burner is idle, as it could if this line ended at the top of the oil tank. Second, a check valve is installed in the suction line, inside the basement wall, and a filter or strainer at the tank side of this check valve serves to keep it clean, as well as serving the usual function of giving the burner clean oil.

While the use of these two principles insures holding the prime when the burner is idle, according to certain experts it is not necessary to employ both principles. One expert would install only the check valve, while another would run only the return line to the tank bottom and would use no check valve. Still another idea is to install the suction line check valve at the burner, with or without the filter or strainer near it. Or, a foot valve, installed in the oil tank at the bottom of the suction line, does best of all, say certain burner engineers, especially if you make certain to install the best and most suitable foot valve obtainable.

A dealer new in oilburner work may have a hard time deciding on the method he will employ to prevent loss of prime on the few installations where the outside tanks are located considerably lower than the burners. Here is consolation for him while he struggles with the problem: Any of a number of methods can be used successfully; with the best in modern oil pumps and fuel units, and with air-tight suction lines, keeping an oil pump primed is not a great problem.

Diag. 2 shows the lefthand end of the oil storage tank three or four inches lower than the opposite end, where the suction line is located. In case of trouble with water in the tank, the water will collect in the lefthand end, and can be pumped out easily by using the 2" cap above the tank.


1¼" Vent
FUEL UNIT MUST BE READY FOR TWO-LINE OPERATION
Shut-Off Valve
Filter or Strainer
Check Valve
Shut-Off Valves at Oil Burner
2" Cap permits pumping-out and "sticking" tank
Suction
Return
2" Line to Fill Cap
Diag. 2 - Piping of Outside Tank Installation --- top of tank is below burner, requiring features to prevent burner from losing its prime

Every outside tank installation should be fitted with a return line. Use the "Two-Line" fuel feed system.

For small pressure burners, rated to fire up to about 5 gph, copper tube suction and return lines ⅜" O.D. and with minimum wall thickness of .049" may be used where the total length of the suction line is not greater than 50 ft., measuring along the suction line from the bottom of the oil tank to the burner. For suction line length from 50 ft. to 125 ft., use ½" O.D. copper tubing, also of .049" wall thickness.

The location of the tank, the size of the

suction line, and the type of fittings and specialties used in the suction line should all be engineered, where possible, to arrive at lower than 10" vacuum at the inlet of the oil pump or fuel unit on the burner. Where possible, avoid having the bottom of an outside tank more than 10 ft. lower than the oilburner. Although high suction line vacuum creates problems that should be avoided, it is true on the other hand that through use of excellent equipment and skillful engineering a pressure burner can work dependably and flawlessly with a suction line vacuum at the burner as high as 18".

Where trouble with oil pumping has occurred on pressure burner installations, the main causes have been: 1. Air leaks in oil lines; 2. Suction and return lines of insufficient size; 3. Plugging of lines with foreign material, or restriction of lines caused by damage or by kinking or bending sharply the copper tubing; 4. Use of the wrong valves and fittings (including strainers or filters) in the suction lines, causing high vacuum at the pumps; 5. Loss of prime on the few installations on which the outside tanks are located considerably below the burners, usually caused by failure to employ any common-sense method for holding the prime when the burner is idle for days.

One other trouble is not related to suction and return lines, but to vent and fill lines, and to tank bushings. The trouble is water accumulating in the oil storage tank. To avoid this, make doubly certain that every underground joint in the piping is made dead-tight, so that surface water will not find a way into the oil tank when snow melts and during rainy weather.

Compared to other problems of oilburner installation and service work, the problems of piping fueloil storage tanks and pressure burners are solved easily. If you understand the principles involved, and use only the best in material and workmanship, there is little chance of having trouble with the oil handling phases of a pressure burner installation.

* * *

Note: This is the fourth in a series of articles on installing pressure burners.

◈

John Duffy has joined Automatic Heat, Inc., Philadelphia 41, Pa., as manager of its rapidly expanding Oil Division. Since August 1 the company has been delivering fueloil in its own fleet of trucks and has recently purchased fifteen Autocar cab-over-engine chassis with Quaker City 2000 gal. tanks, meters and equipment. Mr. Duffy for seven years managed the General Utilities Div., Petrol Corp., and prior to that was with Texas and Cities Service Companies.

"While he keeps me waiting would you care to dance?"

Twenty Years Ago

(From the September issue, 1927)

Rumors are current that a number of oilburner companies are planning mergers or cross licensing of patents to form one or more "General Motors" companies in this industry.

National Radiator Company, the second largest unit in the heating industry, has been formed by the merging of six firms: National Radiator Co., Niagara Radiator & Boiler Co., Continental Heater Corp., Utica Heater Co., Union Radiator Co., and Gurney Heater Mfg. Co.

The oilburner division of the Beckwith Co., Dowagiac, Mich., has been sold to the Summerheat Corp., headed by George Culp, who developed the burner for Beckwith. Mr. Culp recently has been eastern representative for Absolute Con-tac-tor Corp.

A new list from Underwriters Laboratories shows 75 companies making domestic oilburners and eight industrial burner makers who have equipment listed.

Standard Oil Co. (N. J.) has acquired American rights to the Bergius process of making oil from coal from the German Dye Trust.

Shell has discovered a new producing horizon in Oklahoma at 6,000 feet. Few oil wells in the Mid-Continent field have been drilled below 4500 feet in the past.

David B. Roberts and son, Harry B., have retired from the automobile business at Hartford, Conn., to devote full time to the Super Oil Heator Co.

L. P. Dryden has been named sales manager for Baker Steam Motor Car & Mfg. Co., succeeding H. F. Widdicombe, who has resigned to become manager of the oilburner division of Security Stove & Mfg. Co.

A survey of major oil companies indicates that the present downward trend of furnace oil prices will continue. Prices are down to 10½ cents in Boston, 10 cents in New York, and 8 cents in Chicago and Cleveland.

Connecticut has approved 27 oilburners for installation within the state.

A survey of 36 cities by *Literary Digest* shows only 1.1% saturation of the oilburner market.

Monitor Furnace Co., Cincinnati, has taken over the manufacture of the Crosley oilburner formerly made by Crosley Radio Corp.

Controlled Air Delivery, The Answer

Development of the Turbulator Principle Has Raised Efficiency

by
Charles H. Burkhardt*

THE HIGH PRESSURE gun type burner today has reached a point of standardization that could almost be compared with that of the automobile industry. This trend toward a unified design and principle of operation has been gradual and could almost be called a process of evolution. As time passed, the high pressure gun type oil burner manufacturer began to realize that outside of a change of design in the casting which presented a difference in appearance to the consumer's eye and could characterize the brand of the burner, there was little else to do but accept one of a small number of well engineered pumps, a proper fan, a good motor, a standard nozzle, transformer, etc., put them together and there was the burner. Except for rare instances of sporadic mechanical developments this became the practice and progress ceased to a great extent in the case of the high pressure gun type burner.

As the war ended, and things approached a normal state, a revived interest in domestic high pressure burners was apparent.

New Feature Added

A new feature was being added to the situation in new methods for the production of distillates from the crudes and we began to hear a lot about the new "catcracked" oil. All kinds of things were predicted and most of them proved, as usual, to be nonsense. It is true that under certain circumstances it did pose problems which will be discussed in this article, but none of them proved too serious. The important thing about catalytic #2 fueloil relative to the burner industry was that it started to jog the designers of high pressure gun type burners and thereby stimulated a train of thought and action that is turning out to be beneficial to the entire industry. The oilburner was reconsidered in the light of its ability to perform with this new type oil and the engineers went to work. The results were interesting and encouraging. The last frontier of the high pressure gun type burner was attacked—its air delivery. Velocity and turbulence were subjected to research and investigation and we began to see interesting development. With pumps, motors, fans, nozzles, castings, ignition systems all well standardized, we found there was still room for improvement in this one field—a field that might have been neglected for a long time to come had not catalytic oil appeared on the horizon. Catalytic oil presented a small problem but produced excellent solutions.

There had been some devices developed along this line previously but none of them did more than attempt to increase velocity by simple expedients. Studies demonstrated the fact that there was a relation to the CO_2 between air delivery from the blast tube and exactly where that air met the oil spray, and further that air delivery would, if controlled accurately, destroy fluctuating pressure areas within the oil spray itself and thereby reduce pulsations. Experiments demonstrated that it was not enough to have a stream of air moving down the blast tube and given turbulence by a diffuser or air cone, with these meeting the oil spray haphazardly in the chamber. It developed that the air should be divided into two streams; one stream going down the blast tube (given turbulence by a cone) to furnish most of the oxygen for combustion; and another stream to be directed with increased velocity through a smaller inside tube so that it would be forced directly into the spray close to the nozzle. This air had to have great speed in order to properly assist in the combustion of the peculiar catalytic aromatic hydrocarbon molecule. The catalytic molecule gives up its carbon and hydrogen during combustion with great reluctance and only by surrounding the microscopic particle with air can we achieve this mixing to the extent necessary for smokeless burning. High velocity, properly controlled, is the answer. This use of an inner air tube to furnish high velocity nozzle air produced remarkable results—CO_2's jumped to 11 and 12 and even 14% all through the normal stages of operation and catalytic oil was as easily consumed with as high a combustion efficiency as any other.

Turbulators Introduced

With the appearance of the first combustion head or turbulator, a great push was given to the surmounting of the last frontier of air delivery. Several turbulators began to make their appearance and soon they extended from a range of ½ of a gallon to 6 or 7 gallons. Most of them work on the same principle of separating the air stream so that it will have a portion directed over the nozzle close to the source of spray. By controlling the actual spot at which the high speed stream of air reached the spray, the mixing of the oil and air began much sooner than ever before in the combustion chamber.

Not only that, but a slight movement of the inner cone backward or forward effected the combustion efficiency by changing the location of air penetration and resulted in lower or higher CO_2. Openings at the back of the inner air tube provided for more or less "nozzle air" to penetrate the cone as the gallonage increased or decreased. Haphazard methods of mixing air and oil were shown to be one of the main reasons for pulsations, low CO_2's, and smoky fires. Excess air was not the only cause of low CO_2 readings. Experiments illustrated that a good portion of the air was "excess" only because it was allowed to be, and if it was properly turbulated and directed it would mix with the oil to produce a richer vapor and a hotter and more efficient fire. A new relationship to the oil spray was established; the catalytic oil would burn as well as any other if the inner air of high velocity met it closer to the nozzle. In other words, the sooner the air and oil started mixing —the closer to the nozzle this began—the easier the fuel would burn; simple and effective, but a long time in arriving.

In all these turbulator heads, the full

*Head, Automatic Heating Dept., YMCA Trade and Technical School, New York.

volume control of air is maintained by a conventional air shutter of the slide or pivot type, whatever kind may be on the burner. One requires a special fan size; another requires a different fan size over certain gallon ranges; still another requires the complete head to be changed with changes in gallon range while the fan remains the same. All of them work with the principle of inducing a finer, more thorough and complete mixture by getting the high velocity air to the nozzle spray directly. Most of these heads work most efficiently with a definite angle of spray on the nozzle and are specified to be used so. This is another step in the direction of standardization that makes for easy servicing and consumer acceptance. In every case to date these new type turbulators have an adjustable opening that regulates the volume of air passing through the inner air tube. This gives precision control over the amount of velocity of the air that intimately contacts the nozzle spray with specific direction, a very important and heretofore somewhat neglected adjustment. One of the most forward steps in the development of these air control devices is that they are adaptable to almost any high pressure gun type burner thus making their benefits easily obtainable to the entire industry.

It is true that these additions to the burner parts family do add complications to the adjustments of the burner and might meet resistance from some servicemen but the truth of the matter is that the complications are slight and the adjustment easily mastered by anyone with a mind to do so. When compared with the increased efficiency in flame performance and the consequently economy of operation, there is little that can be said against them in this respect.

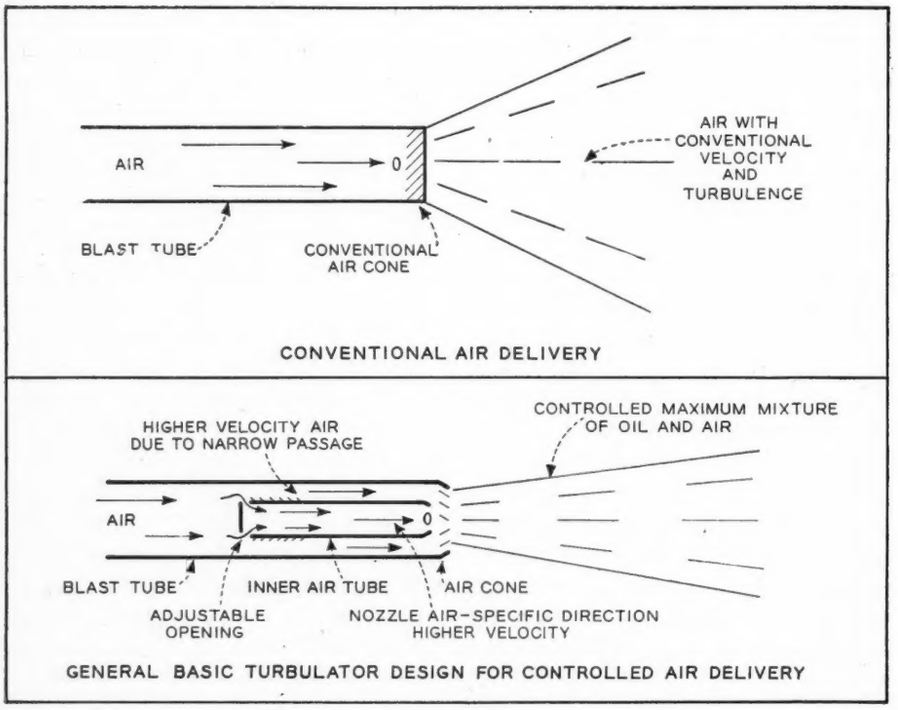
At this point, it might be well to look at the nature of catalytic oil and see why this additional velocity and turbulence is necessary. Roughly, it might be said that fueloil could be divided into three fractions each with a different kindling temperature. The low fraction or part of the oil that is volatile and evaporates readily is easily ignited by normal electric ignition and will burn readily. Because of its volatility it does not need too much treatment. In burning, this lower, easily ignited fraction gives off heat which helps prepare the middle or heavier fraction for combustion. This further step produces more heat. The additional heat from the middle fraction further helps volatilize the heavier fraction and the process continues out until the end. The middle and heavier fractions require the heat produced by the kindling of the lower fraction in order to burn. The entire reaction is started and pushed through to its physical conclusion by the lower fraction's ability to ignite easily. From this we can see that the greater the content of the lower fractions in fueloil, the more easily it will begin to burn for the lower will be its kindling temperature. In the ordinary thermally cracked #2 fueloil we have a considerably larger portion of lower fractions and thus it is easily ignited with electric ignition. We find that it requires no unusual treatment. A normal air delivery with a limited amount of turbulence does the trick. Because of the fair amount of lower fractions there is comparatively no trouble and the larger the amount of lower fractions the more easily initial combustibility is obtained.

Catalytic Cracking

The oil industry, however, is mainly interested in keeping most of the lower fractions in gasoline and thereby increase the total quantity of gasoline produced at the refineries. But the more of the easily burning lower fractions that are retained in gasoline the less there will be in fueloil and the more difficult it will be to burn completely. The catalytic method of cracking the crudes accomplishes the purpose of keeping more of the lower fractions for gasoline and less for fueloil. As a result, with less of the lower fractions in the fueloil the harder it is to ignite and burn completely. The problem is therefore very definite and thus easily solved. It is only when such a problem is unknown or unsuspected that a solution is delayed or obscured. In this picture there is an immediate silver lining however in that the less lower fractions and the more middle or higher fractions a liquid fuel has, the greater its heat content. Thus the Btu content of catalytic #2 is greater by the very nature of the larger carbon content of the heavier fractions.

The problem could be disposed of in two ways. One by preheating the catalytic #2 which would immediately increase its volatility and provide for more efficient burning. The preheating of a fueloil light as #2, however, is full of complications and hazards when it comes to the high pressure gun type burner. This solution was therefore ignored. The second solution and the accepted one was to ease and facilitate the path of the oil into the gaseous or vaporous state by adding a device that would increase the control with which it could be made combustible. The other agent in the process being air, which gives the oxygen, without which combus-

(*Continued on page* 140)



I Used Gas A Year

It Cost a Third More Than Oil for Heating

by
A. B. Wolle

THE FOLLOWING REPORT is an actual comparison of gas and oilheating for two one year periods in the same ten room single family house in the suburban area north of New York City. An accurate record was kept of the gas and oil consumption for heating over the two year period, the first year for gas firing and the second year for oilfiring. The same boiler was used in each test. This boiler had originally been installed to use coal as a fuel. The original gas installation was a conversion of this boiler from coal to gas firing. As there was no change to be made in the boiler when converted from gas to oil a conventional oilburner and combustion chamber were substituted for the gas burner.

All household conditions were maintained as closely uniform as possible for the two year period so that the margin of error for unknown factors could be reduced to a minimum. For instance the electric clock thermostat was in the same position during the two year period of test and the morning starting and shut down periods as well as the temperature settings on this device were identical during the entire two year test period. Only one major change was made in the system and that was the addition of zone control for the master bedroom and bath which change was made during the summer after the gas burner had been removed and the oilburner installed. Any changes in fuel consumption would therefore show to the advantage of gas fuel.

The house under test is exposed on four sides. It stands by itself on a rise of ground which exposes the back of the house to a wide sweep across a valley to the west and north.

The house is of frame construction, shingle roof and with shingled sides. There are ten rooms in the house not counting the large entrance hall in the middle of the house, stairway, long upper hall and garage. There are thirty-two windows and five outside doors in the house. Of the windows those on the west and north are equipped with storm sash. All doors are weather stripped and two doors are equipped with storm doors.

Before the first heating season started an insulating cap was placed over the entire top of the house using rock wool bats and loose rock wool over the ceiling of the master bedroom and bath.

Complete Heating Survey Made

A complete heating survey was made of all the rooms indicating a total volume of used rooms of 14,615 cu. ft. not including the garage or part of the attic which is not equipped with radiators. The total BTU required per hour was established as 102,900 based upon a 70 degree differential and a heat transmission factor for walls of 0.027. Inasmuch as the heating system was circulated hot water a heat discharge from the radiators of 180 BTU per square foot of heating surface was used. The required radiation of the house was determined as 715 square feet which compared favorably with the installed radiation of 707 square feet of cast iron.

The heating boiler, of coal design, Abendorth 206-W had a recommended EDR load coal-fired of 1320 square feet indicating that the boiler was suitable if not completely satisfactory for the use to which it was put.

Shortly before the first heating season the hot water supply was connected to the heating boiler with the installation of a 40 gallon horizontal hot water storage and heat exchanger. Both tank and heat exchanger were covered in the conventional manner, that is with an air cell tank jacket and loose asbestos on the heat exchanger.

Under gas firing the bills included the gas used for cooking. Subsequent study indicates that a total allowance of $60.00 a year for this fuel is more than generous inasmuch as the house was empty for two months during the summer the first test year and occupied during the same period the second test year.

By pro-rating the first billing period during which gas fuel was used based upon the total degree days for this period, a starting date of January sixteenth was determined for gas firing so that the consumption would cover one year and end on January 16, 1946 the day the oilburner was installed.

At intervals during the year that gas was used as a fuel two orsat tests were taken by the gas company. The results were never available but check tests showed a CO_2 of 8% and 8½% with stack temperatures about 380 degrees F. Protests to the gas company that these results were highly unsatisfactory even though the boiler was baffled and a draft breaker was installed brought a second visit and an increase in the firing rate but no reduction in the monthly bills, or bettering of CO_2 content of the flue gases.

During the year there were three calls made to the gas company for service because of ignition failure during extremely cold nights. There were no calls for service with the oilburner.

At the end of the year gas heating had cost $329.24 for heat and hot water after deducting the $60.00 mentioned before as the allowance for gas used for cooking. The amounts of the bills sometimes were staggering particularly the bill for November thirtieth to January thirty-first of $108.14.

During the summer months, that is June first to August first, water heating cost $31.49 or $15.74 a month. From August first to October first the charge was $30.69 or approximately the same monthly rate although the house was empty for both July and August.

Removes Gas Burner

On January sixteenth 1946 the gas burner was removed and a low pressure gun type burner was installed in the boiler. The old tin pipe flue baffles were removed from the second passes of the boiler as well as the draft breaker and a damper type draft control was installed in the smoke pipe. A tight fire box of insulating type refractory was constructed and sized 14" by 16" to accommodate the flame characteristics. The top of the fire box was sealed to the boiler with hearth cement to

(*Continued on page 144*)

A.P.I. to Issue Booklet to Encourage Fueloil Saving

AT THE MINNEAPOLIS meeting of the Marketing Division of the American Petroleum Institute on July 1, P. E. Lakin, Shell's vice-president and chairman of the Division's program committee, proposed that the Institute issue a booklet to be given fueloil consumers early this fall telling them how to conserve fuel this winter, in anticipation of a probable supply stringency.

After the suggestion had been unanimously approved by vote, B. L. Majewski, API's vice-president in charge of marketing, appointed a committee to arrange the preparation and printing of the booklet. The committee met at Chicago August 18 and completed details to get the first printing under way and ready for distribution in late September. McCann-Erickson Agency is handling the job.

After a thorough exploration by the Committee of the purposes of the booklet and the uses to which it would be put, it was decided that the booklet should not in any way touch on the present threatened fuel stringency, but rather be a general presentation on the subject of fueloil conservation . . . a booklet that would be as good ten years from now as at any other time. Titled "How To Save Money On Oilheating," the booklet will contain some 40 suggestions on improvement of heating plant, house and family habits. It should get into the hands of every oilheating user as an industry good will builder.

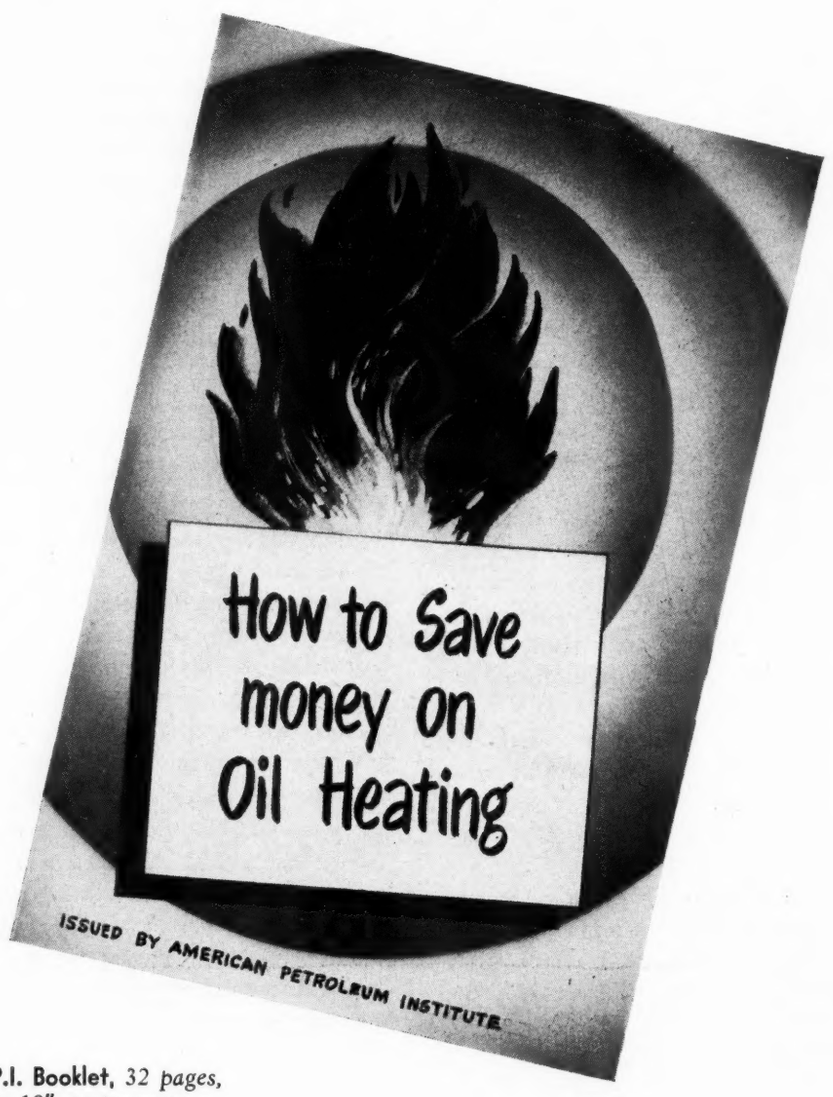
The committee then agreed to have a separate letter written, presumably on A.P.I. letterhead, explaining the threatened stringency and its temporary nature. This letter can be enclosed with the booklet by fueloil men who want to tell the customers that story; it can be omitted by those who don't want to go into the subject.

The booklet is convincingly written, full of good illustrations, and if a few million copies can reach users of oil central heating and space heaters this fall its simple educational merit cannot fail to result in saving a large quantity of fuel that will otherwise be wasted. Moreover, it is important to realize that if only a small percentage of oil is saved, additional thousands of jobs can be safely installed this year and next.

The 32-page booklet with mailing envelope and covering letter, all ready to address to customers, will cost 6¢ each. Order them at that price through Wesley I. Nunn, Standard Oil Co. (Indiana), 910 South Michigan Ave., Chicago. They will be available in packages of 100 at that price, and you may get a small refund if the total quantity printed runs high. The first printing order is for a half million, most of which were sold to the few companies who knew in advance about the project. So send your order as early as possible, since paper for printing is scarce and effort is required to get it.

In addition to Nunn, who is chairman of the A.P.I. Fueloil Conservation Committee, other members in attendance at Chicago were David Barrett, Standard Oil Co. of New Jersey, New York, Walter Holmgren, W. H. Barber Co., Minneapolis, Carl Jonswold, Arrow Petroleum Co., Chicago, Coleman Mockler, Shell Oil Co., New York, Douglas Smith, Standard Oil Co. of California, San Francisco, and Robert Gray, FUELOIL & OIL HEAT, New York.

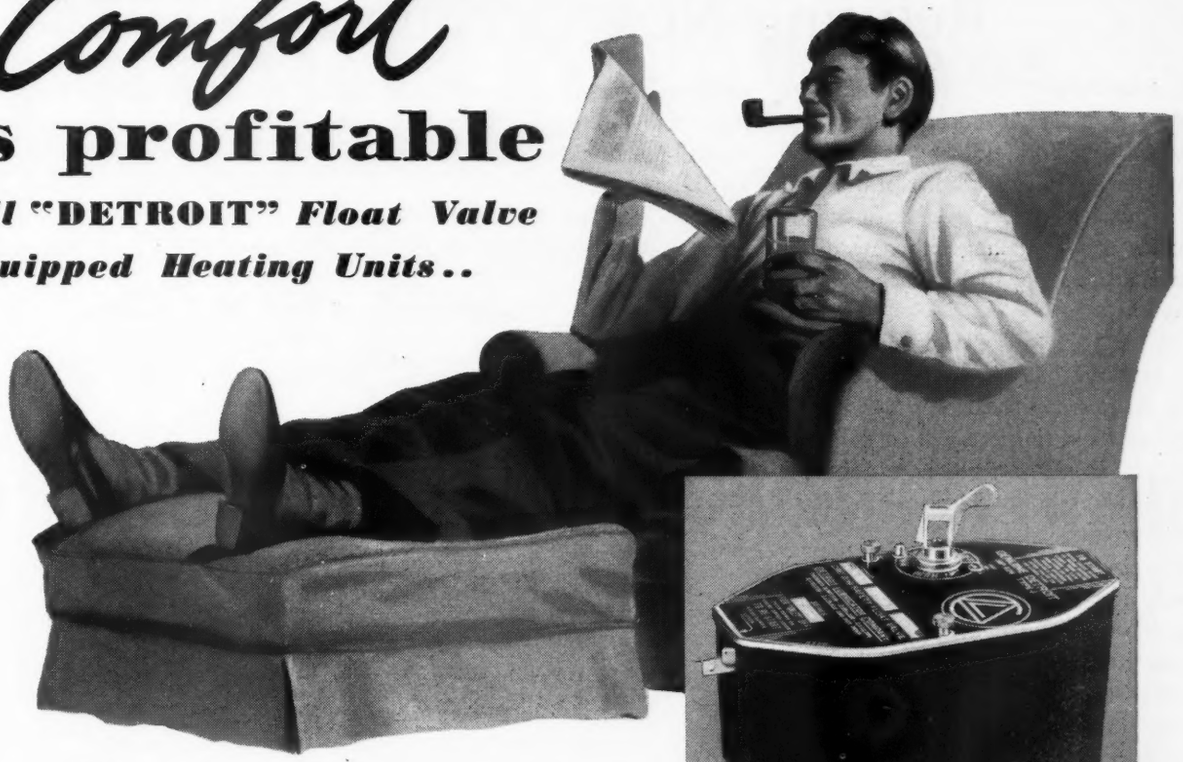
Other members of the Committee, not present at Chicago, are W. A. Matheson, Oil-O-Matic, Bloomington, Ill., J. L. Miner, Shell Oil, New York, J. W. Scott, Buckley & Scott, Watertown, Mass., John R. Sherwood, Sherwood Brothers, Baltimore, and Frank E. Spencer, Socony-Vacuum, Chicago.



A.P.I. Booklet, *32 pages, 7" x 10", to promote oilheating economy.*

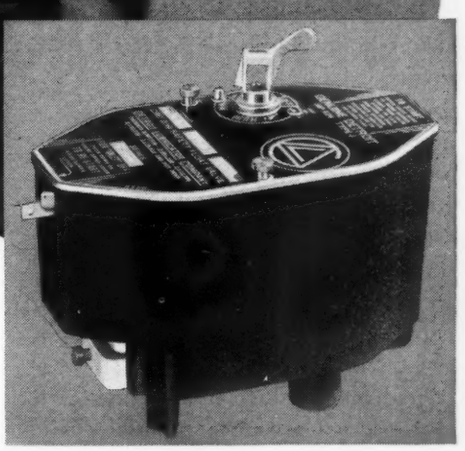
Comfort is profitable

Sell "DETROIT" Float Valve Equipped Heating Units..



The first man who solved his housing problem by evicting the animals from a cave was following a universal human urge—desire for comfort. That desire has been one of the great driving forces of civilization. Always the man who sells comfort finds a desire for his wares.

Sell more comfort at a profit with "Detroit" Float Valve equipped space heaters, water heaters, ranges and furnaces.

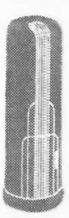


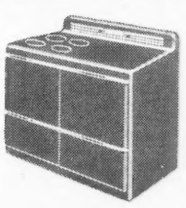
They provide clean, reliable oil heat—automatic if desired.

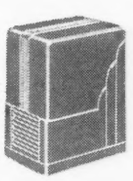
The user is assured of reliable fuel regulation. "Detroit" Float Valves are simple, extremely durable—easy to clean. Fully temperature compensated, fuel flow is uniform regardless of fuel temperature. Full heater output is assured at all times.

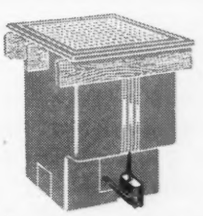
2749

"DETROIT" Float Valve









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Half of Major Companies Refusing New Accounts

In a country-wide survey completed in August by the Fitzgibbons Boiler Company in New York, utilizing its own field forces for interviews, about half of major oil companies in the area east of the Rockies are not taking any new direct accounts to supply fueloil in the coming season.

Of thirty-one major companies reporting at head offices or at division offices, fourteen will take new business on distillate fuels, fourteen will not take any such accounts, and three have a flexible policy, taking only occasional selected new customers.

On residual fuels the ratio is approximately two to one against accepting any new business. Thirty-five companies east of the Rockies, and these are all majors at their head or division offices, were interviewed in connection with residuals. Twenty of the officials talked with said their companies are taking no new residual business, ten say they are taking all that is offered, and five take an indefinite number of selected accounts, primarily those having public-health implications.

The Midwest, where the supply is known to be tightest in prospect, shows an even less favorable ratio of companies taking new business. Nine majors were interviewed in that area and of these three will take new distillate business, five will not take any, and one will take selected accounts.

On residual fuels thirteen Midwest companies reported their position. Three of these are accepting new business, nine are refusing it, and one is taking special accounts.

In the Southeastern states, with five companies interviewed, a record is almost complete for taking new business on both distillate and residual. However, in the Central Southern states, where six companies were interviewed, the ratio is five to one against taking new business on either distillates or residual.

The North-Atlantic states, most concentrated of all oilheating areas, finds five companies taking new distillate business, four refusing new business, and two taking selected accounts out of a total of eleven interviewed. In that same area, with twelve expressions on residual fuels, three companies will take new business, six will not, and the remaining three take a little on a selective basis.

In nearly every section, the companies believe they can take care of all old customers, with few exceptions. For the whole area studied, East of the Rockies, thirty-six companies reported on their ability to handle present distillate customers. Thirty of these say they can do it without question, one says it cannot handle them all, while five express doubt.

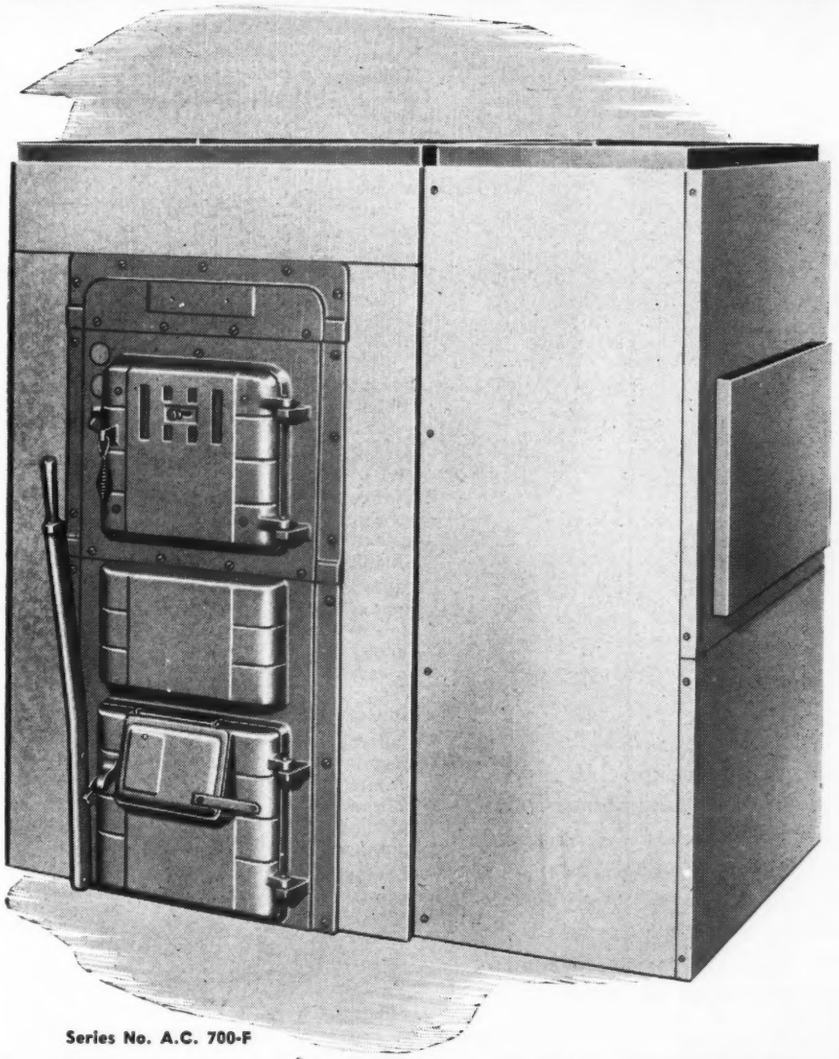
On residual fuels, the same companies report as follows on their ability to supply the full needs of their present customers: 25 Yes; 3 No; and 8 uncertain.

Supply Policies of Major Oil Companies

	NO. 2-3 OIL						NO. 5-6 OIL					
	Supply Old Acc'ts.			*Take New Acc'ts.*			*Supply Old Acc'ts.*			*Take New Acc'ts.*		
	Yes	*Doubtful*	*No*	*Yes*	*Selective*	*No*	*Yes*	*Doubtful*	*No*	*Yes*	*Selective*	*No*
NORTH ATLANTIC												
New Haven	*			*			*				*	
New York	*			*			*			*		
Washington	*						*					
Harrisburg	*			*			*					*
Baltimore	*			*				*				*
Washington	*					*					*	
Philadelphia	*						*					
Philadelphia		*			*			*				*
Buffalo	*			*				*				*
New York	*						*			*		
Worcester	*				*		*				*	
Newark	*					*	*					*
Boston	*					*	*			*		
Syracuse						*						*
Total	12	1		5	2	4	9	3		3	3	6
SOUTHEAST												
Birmingham	*			*				*			*	
Tampa	*			*			*			*		
Chattanooga	*			*			*			*		
Columbia	*			*			*			*		
Atlanta	*			*			*			*		
Total	5			5			4	1		4	1	
SOUTH												
New Orleans			*			*			*			*
Louisville		*				*		*				*
Charleston				*				*			*	
Richmond	*					*	*					*
Memphis	*					*	*					*
Jackson	*					*	*					*
Total	3	1	1	1		5	3	2	1		1	5
MIDWEST												
Chicago		*			*				*		*	*
Minneapolis	*						*					*
Des Moines	*			*			*					
Omaha	*						*					*
Kansas City	*			*			*			*		
St. Louis		*						*				*
Cincinnati	*					*	*			*		
Detroit	*					*	*					*
Toledo	*					*	*					*
Indianapolis	*					*	*					*
Dayton	*			*			*			*		
Cleveland	*					*			*			*
Grand Rapids		*						*				*
Total	10	3		3	1	5	9	2	2	3	1	9
Total East of Rockies	30	5	1	14	3	14	25	8	3	10	6	20
ROCKY MOUNTAIN												
Missoula	*			*			*			*		
Billings	*			*			*			*		
Salt Lake City	*			*			*			*		
Total	3			3			3			3		
PACIFIC												
Seattle	*			*			*			*		
Portland	*			*				*		*		
San Francisco	*			*			*			*		
Los Angeles	*			*			*			*		
Total	4			4			3	1		4		

MONCRIEF'S New Air Conditioner that Solves "Fuels Restrictions"

Designed to burn Coal—
Can be converted for Gas•Oil•Stoker Firing



Series No. A.C. 700-F

Moncrief ingenuity has come to the front again with a new design in coal-fired air conditioning equipment that can be readily converted to an oil or gas-fired unit.

The excellent design and construction of the rugged, steel heating element, with long fire travel and large heating surface, provide the necessary qualifications for the versatility of this unit.

A new cabinet that allows the full height blower compartment to be assembled at either side, is finished in smooth, glossy baked enamel.

Abundant air circulation is provided by the large, silent operating blower. An automatic humidifier supplies the necessary moisture. Motor is rubber cushioned to prevent operating noises. Large filter area assures a long period of air cleaning without frequent replacement of filters.

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HEATING AND AIR CONDITIONING UNITS — MONCRIEF SINCE 1895 — FURNACE PIPE AND FITTINGS

Additional Fueloil Rations

DOMESTIC fueloil rations issued during the last war year were shown by OPA districts and regions in the February issue, followed by a county break-down for New England in the April issue, and for the Middle Atlantic states in May. We have now completed a county analysis of domestic rations in the other fueloil rationed areas, and will present the country figures on residential central heating and space heating as space allows.

The table shows county figures; for individual board data, write the magazine.

Only the domestic heating rations are shown in the table, those identified by Form R-1100, separated into central heating and space heating. As was explained in detail in the February issue, a lot of burners have been installed in these areas since the ration date.

The actual number of distillate oil-burners operating in any county is somewhat above these figures, because often a typical domestic type burner is installed in a small store or perhaps a four-family flat, and it will be recalled that rations for such buildings were issued under A-1101, rather than the private dwelling ration.

MIDWESTERN STATES

	R-1100 Central		R-1100 Space	
	Number Issued	*Average Gallons*	*Number Issued*	*Average Gallons*
KANSAS				
Wichita District				
Allen	3	1083.3	121	396.2
Anderson	9	1472.8	47	450.3
Atchison	34	1475.3	307	411.9
Barber	4	1007.5	300	431.1
Barton	152	969.9	813	431.5
Bourbon	11	1481.8	79	242.3
Brown	28	1326.4	337	448.9
Butler	26	1131.7	505	397.3
Chase	4	1800.0	92	448.4
Chautauqua	..	..	..	..
Cherokee	34	1312.5	169	328.0
Cheyenne	42	956.2	330	529.4
Clark	4	1155.3	199	437.0
Clay	24	1092.1	321	573.1
Cloud	35	1171.5	480	436.9
Coffey	15	1081.3	197	434.1
Comanche	..	..	224	465.2
Cowley	2	1425.0	160	419.7
Crawford	13	980.0	159	279.1
Decatur	8	1300.0	268	445.3
Dickinson	16	1244.7	316	432.6
Doniphan	48	1465.6	229	528.1
Douglas	215	1318.5	335	328.6
Edwards	32	1104.1	370	457.6
Elk	..	..	22	327.7
Ellis	15	676.7	504	403.8
Ellsworth	6	1333.3	62	407.3
Finney	..	..	273	407.9
Ford	17	1141.8	860	401.0
Franklin	28	1106.4	237	429.1
Geary	1	3800.0	229	258.1
Gove	21	1350.0	369	615.6
Graham	31	1202.6	383	526.5
Grant	..	..	49	462.7
Gray	8	875.0	258	500.7
Greeley	4	1362.5	188	483.0
Greenwood	14	1104.3	207	471.9
Hamilton	1	590.0	53	448.2
Harper	26	1173.1	704	441.5
Harvey	24	1139.6	275	446.4
Haskell	..	..	85	519.7
Hodgeman	5	770.0	278	451.3
Jackson	52	1000.6	294	351.5
Jefferson	8	1307.5	180	357.5
Jewell	11	1277.3	320	466.7
Kearney	1	950.0	92	495.1
Kingman	16	1375.6	352	446.4
Kiowa	12	1452.3	277	481.4
Labette	34	1103.5	174	308.6
Lane	3	1050.0	239	542.8
Lincoln	1	2150.0	188	406.5
Linn	2	925.0	65	404.9
Logan	35	1095.7	106	537.0
Lyon	61	1276.2	330	367.2
McPherson	15	901.3	457	425.5
Marion	5	938.0	699	424.8
Marshall	31	1616.8	334	467.3
Meade	..	..	303	428.5
Miami	5	1130.0	141	378.3
Mitchell	29	1310.3	351	374.2
Montgomery	9	1372.2	155	358.8
Morris	..	..	108	352.8
Morton	..	..	19	501.1
Nemaha	43	1294.2	235	424.8
Neosha	76	1309.7	178	423.8
Ness	61	1124.3	475	461.2
Norton	39	1116.7	385	463.5
Osage	21	1216.7	228	378.3
Osborne	8	1387.5	334	459.0
Ottawa	20	1191.5	382	418.4
Pawnee	73	975.2	507	447.0
Phillips	14	1682.1	314	665.0
Pottawattamie	77	666.5	32	390.8
Pratt	21	1245.2	572	531.1
Rawlins	10	880.0	374	525.8
Reno	58	1345.0	818	415.3
Republic	11	969.1	359	456.5
Rice	20	870.0	479	444.3
Riley	17	1315.3	329	496.4
Rooks	62	1103.4	514	606.5
Rush	22	518.6	152	440.5
Russell	16	869.4	435	462.4
Saline	83	1549.8	569	453.2
Scott	1	1500.0	144	448.7
Segwick	611	1399.5	2,941	462.4
Seward	..	..	300	264.7
Shawnee	393	1430.1	1,037	443.0
Sheridan	27	1222.6	303	692.7
Sherman	110	1156.8	688	511.5
Smith	20	1282.5	216	445.2
Stafford	47	1084.0	531	455.3
Stanton	..	..	39	426.2
Stevens	..	..	28	431.1
Sumner	15	936.0	575	411.9
Thomas	59	1036.1	482	486.2
Trego	3	1190.0	295	481.8
Walbaunsee	7	1478.6	165	322.4
Wallace	9	898.9	179	428.0
Washington	1	500.0	248	401.4
Wichita	1	80.0	193	491.5
Wilson	1	3750.0	35	473.9
Woodson	..	..	113	429.1
Johnson	356	1805.7	519	373.1
Wyandotte	452	1188.7	3,083	393.6
Leavenworth	75	1431.3	342	344.6
KANSAS TOTAL	3,347	1243.8	32,761	446.1
KENTUCKY				
Lexington District				
Bath	..	..	..	..
Bell	2	375.0	2	295.0
Boone	73	723.2	122	434.4
Bourbon	29	1382.8	102	131.6
Boyd	..	..	38	182.9
Bracken	19	939.2	20	87.1
Breathitt	..	..	..	..
Campbell	54	1273.1	375	238.8
Carter	..	..	115	126.5
Clark	..	..	25	203.0
Clay	1	1305.0	..	..
Elliott	..	..	..	..

IN SEPTEMBER ALONE

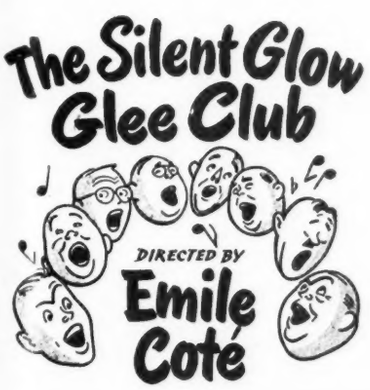
The *Air-Seel* Story will be seen or heard by 23,000,000 families . . . . . .

all oil burners make heat but Silent Glow Air-Seel conserves the heat it makes.

IN NATIONAL MAGAZINES

such as Good Housekeeping readers will see the powerful ad reprinted here in the September issue. And home owners will be quick to realize that Air-Seel's heat saving feature is now more important than ever before. Note, too, that Air-Seel now carries the Good Housekeeping Seal of approval—the invaluable O.K. your customers rely upon for proven quality.

OVER THE AIR WAVES



The Silent Glow Glee Club, directed by Emile Cote, reaches 4,793,580 families every week. This outstanding radio program is making countless new friends and customers for Silent Glow dealers everywhere.

We Made the Happy Discovery

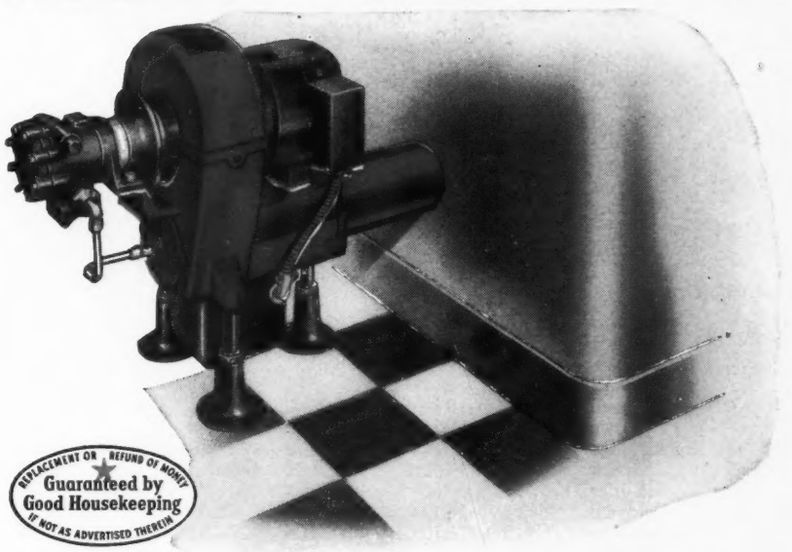
All oil burners make heat

b-u-t

SILENT GLOW

Air Seel

CONSERVES THE HEAT IT MAKES



We thought that all oil burners were the same — until we saw a demonstration of Silent Glow Air-Seel — with its wonderful heat-saving features. Air-Seel is the proud achievement of Silent Glow, whose products for nearly a quarter century have brought warmth and comfort to homes the world over. So, if you plan to modernize your heating system or replace your present oil burner, be sure to tell your husband about Air-Seel. A demonstration will quickly prove *why* those who know, choose Silent Glow.

FOH-1

The Silent Glow Oil Burner Corp.
1477 Park St., Hartford 6, Conn.

Please send, without obligation, the complete facts about Air-Seel and name of nearest dealer.

NAME_____

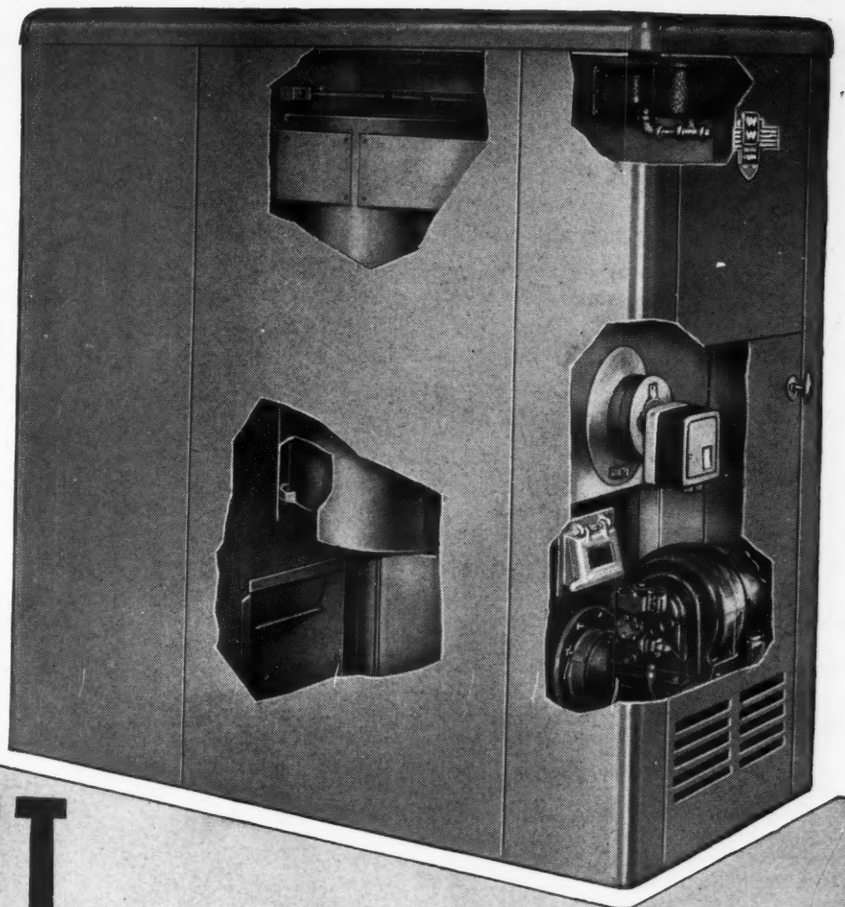
STREET_____

CITY_____ ZONE____ STATE_____

	R-1100 Central		R-1100 Space	
	Number Issued	Average Gallons	Number Issued	Average Gallons
Estill	..	..	..	..
Fayette	36	2673.2	26	181.8
Fleming	12	788.3	59	80.0
Floyd	..	..	..	..
Garrard	1	1800.0	..	..
Grant	3	1666.7	51	354.1
Greenup	1	120.0	..	..
Harlan	3	365.0	29	75.1
Harrison	..	..	59	170.1
Jackson	..	..	..	..
Jessamine	5	1280.0	106	155.1
Johnson	..	..	..	..
Kenton	67	1107.3	650	281.4
Knott	..	..	..	..
Knox	..	..	4	132.3
Laurel	2	1250.0	..	..
Lawrence	3	121.7	..	..
Lee	..	..	..	..
Leslie	..	..	..	..
Letcher	3	125.0	15	36.2
Lewis	41	215.1	..	..
Lincoln	..	..	..	..
McCreary	..	..	..	..
Madison	4	1825.0	34	464.3
Magoffin	..	..	..	..
Martin	..	..	..	..
Mason	5	1470.0	25	380.2
Menifee	..	..	..	..
Montgomery	4	2275.0	22	147.7
Morgan	..	..	..	..
Nicholas	1	700.0	38	169.3
Owsley	..	..	..	..
Pendleton	9	853.3	5	392.0
Perry	1	800.0	2	212.5
Pike	..	..	10	254.0
Powell	..	..	..	..
Pulaski	..	..	..	..
Robertson	..	..	2	150.0
Rockcastle	..	..	..	..
Rowan	..	..	..	..
Scott	..	..	..	..
Whitley	3	400.0	..	..
Wolfe	..	..	..	..
Woodford	2	3150.0	1	500.0
Louisville District				
Adair	4	862.5	40	91.8
Allen	..	..	..	..
Anderson	1	1900.0	103	80.1
Ballard	2	535.0	62	95.1
Barren	16	1054.4	20	210.8
Boyle	1	900.0	176	71.5
Breckinridge	..	..	4	327.5
Bullitt	8	1462.5	32	404.1
Butler	..	..	..	..
Caldwell	1	1800.0	23	86.0
Calloway	8	1250.0	106	208.9
Carlisle	..	..	11	128.2
Carroll	5	1150.0	21	131.0
Casey	..	..	5	70.0
Christian	1	925.0	37	102.7
Clinton	1	200.0	3	78.3
Crittenden	..	..	..	..
Cumberland	..	..	3	151.3
Daviess	14	2089.3	64	273.1
Edmonson	..	..	24	192.5
Franklin	1	1350.0	18	203.0
Fulton	10	1570.0	246	167.6
Gallatin	6	1916.7	..	..
Graves	10	1510.0	266	130.1
Grayson	4	987.5	1	935.0
Green	..	..	..	..
Hancock	..	..	11	79.2
Hardin	..	..	378	172.2
Hart	..	..	21	161.0
Henderson	7	1778.6	243	149.4
Henry	5	1320.0	70	231.3
Hickman	..	..	62	78.7
Hopkins	..	..	168	67.6
La Rue	..	..	..	..
Livingston	1	460.0	12	150.3
Logan	..	..	2	192.5
Lyon	..	..	25	127.6
McCracken	23	1627.4	585	146.7
McLean	..	..	..	..
Marion	29	1250.0	42	272.0
Marshall	13	551.9	109	259.8
Meade	..	..	36	250.8
Mercer	4	1485.0	18	107.5
Monroe	..	..	..	..
Muhlenberg	..	..	1	80.0
Nelson	23	879.1	40	192.9
Ohio	10	961.5	1	60.0
Oldham	14	1903.6	109	237.0
Owen	1	1300.0	21	395.5
Russell	..	..	7	124.1
Shelby	9	1197.8	131	237.1
Simpson	..	..	14	71.6
Spencer	1	1050.0	9	415.6
Taylor	1	440.0	5	347.0
Todd	..	..	36	348.1
Trigg	1	575.0	..	..
Trimble	1	800.0	24	494.6
Union	4	1633.8	62	141.6
Warren	12	828.3	94	83.5
Washington	12	544.3	73	176.7
Wayne	10	1565.0	9	65.6
Webster	..	..	21	63.7
Jefferson	912	1729.8	2,868	222.9
KENTUCKY TOTAL	1,575	1499.9	8,509	200.5
MINNESOTA				
Duluth District				
Aitkin	46	1557.2	265	673.8
Beltrami	17	1440.9	402	631.2
Carlton	152	1424.2	879	605.1
Cass	94	1274.5	345	712.2
Cook	14	1440.8	101	689.1
Crow Wing	253	1510.2	1,314	652.7
Itasca	138	1516.3	910	634.7
Koochiching	24	1609.2	716	489.1
Lake	27	1497.0	430	606.9
Lake of the Woods	1	750.0	5	534.0
Pine	85	1141.2	622	664.9
St. Louis	2,499	1638.0	5,411	663.3
St. Paul District				
Anoka	471	1156.7	1,773	592.4
Benton	115	1189.8	851	632.7
Blue Earth	578	1375.1	1,584	635.7
Brown	484	1359.1	1,840	467.4
Carver	338	1270.8	1,133	603.0
Chippewa	357	1213.7	1,406	622.1
Chicago	121	1279.6	706	562.5
Cottonwood	214	1381.8	1,147	579.0
Dakota	1,486	1218.8	2,324	642.2
Dodge	54	1126.3	1,064	533.3
Fairibault	379	1237.4	1,654	563.0
Freeborn	126	1155.4	1,572	606.3
Goodhue	396	1338.8	2,292	609.8
Hennepin	26,636	1415.9	17,713	634.8
Isanti	92	1302.2	948	580.9
Jackson	25	1006.4	794	586.1
Kanabec	68	1258.8	418	539.7
Kandiyohi	675	1733.0	2,435	495.4
Le Sueur	155	1235.6	827	496.8
McLeod	434	1422.6	1,570	620.6
Martin	443	1252.6	1,028	586.7
Meeker	273	1336.1	1,440	606.7
Mille Lacs	84	1448.9	818	586.7
Morrison	209	1417.9	1,258	604.3
Mower	150	1142.3	1,356	582.8
Nicollet	174	1294.1	717	507.8
Pope	141	1206.0	1,054	621.2
Ramsey	21,209	1311.5	9,624	617.7
Redwood	303	1203.6	961	569.9
Renville	209	1367.0	1,619	628.4
Rice	159	1308.6	1,132	568.4
Scott	194	1427.2	1,256	579.7
Sherburne	91	1415.9	467	533.4
Sibley	202	1233.5	1,066	572.6
Stearns	785	1511.1	3,021	587.1
Steele	135	1170.7	1,086	516.3
Stevens	175	1391.1	673	719.5
Swift	242	1241.8	1,359	457.1
Todd	163	1246.4	998	633.4
Waseca	291	1342.7	781	626.4
Washington	702	1386.5	1,727	614.6
Watonwan	362	1174.2	1,034	562.8
Wright	371	1236.0	2,070	596.0

(Continued on page 174)

IT'S WHAT'S UNDER THE CASING THAT COUNTS



Waterbury

Oil Fired Air Conditioner

Whether you are installing a simple gravity job or the most complete air conditioner, it's what's under the casing that counts for your customer's satisfaction—and for a trouble-free sale for you.

A modern, compact, attractive unit, economical to buy—economical to operate. It is enclosed in an eye-appealing casing that is a compliment to the most modern basement—but what is equally important to you—because of the efficiency and quality of what is UNDER that casing, you are saved annoying service calls.

FURNACES FOR EVERY SIZE HOME AND EVERY TYPE FUEL—FROM GRAVITY MODELS TO COMPLETE AIR CONDITIONERS.

THE WATERMAN-WATERBURY COMPANY

1171 JACKSON ST., N. E., MINNEAPOLIS 13, MINN.

fuel oil & oil heat

Compact Commission Sees Tighter Outlook

THE ECONOMICS ADVISORY COMMITTEE of the Interstate Oil Compact Commission, probably the most reliable source of supply and demand forecasts in the oil industry, pointed out a somewhat tighter picture during coming months than previously anticipated, in its Report No. 5 at the Great Falls, Montana, meeting of the Commission on August 12.

For the full year 1947 the committee now sees a demand for all petroleum products of 5,805,000 barrels a day, and this has to be met from an expected supply of 5,835,000 barrels a day, indicating a cushion or safety factor of less than half of one percent. To count on any safety factor whatever assumes near perfect balance between the numerous products, between geographic areas and between companies.

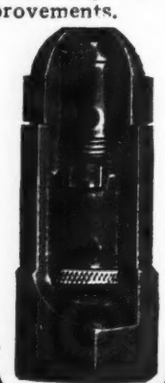
Distillate fueloil is estimated, as to demand, at 870,000 barrels a day for the year, a 15% yield from crude, and residual fueloil at 1,425,000 barrels a day, or a 25% yield. Kerosene demand is expected to be 303,000 barrels a day, or about 5% of the crude barrel. Gasoline, with demand estimated at 2,274,000 B/D, calls for 39% yield, and miscellaneous products account for the other 16%.

For the first quarter of 1948 the committee forecasts total demand for all oil products of 6,165,000 B/D and supply of only 5,970,000 B/D, calling for a drain on crude oil stocks of the difference, or 195,000 B/D. Distillate fueloil demand is expected to reach 1,250,000 B/D in that winter quarter, or 21% of refinery output.

TAKE A MONARCH "TIP"-- AND COMPARE RESULTS!

Monarch Nozzles are preferred by most of the Oil Burner Industry because:

1. Capacities and spray characteristics are *uniform.* Each nozzle is *individually* spray tested and checked for capacity against the flow of a calibrated master sample and capacity tolerances are as low as plus or minus 2½%.
2. Standard nozzles will fire most gun type high pressure burners satisfactorily, but special series are also available for burners requiring nozzles with specified spray characteristics.
3. For twenty years "Monarch" has pioneered most major oil burner nozzle improvements.



Air Cones & Stabilizers

Monarch combinations have been used as original equipment by burner manufacturers for many years and dealers have used thousands of them to make old burners more efficient. Eliminate guesswork—Use this tried and tested equipment and be sure of *results.*
Now available for 3½", 3⅞", 4", 4¼", 4½", 4¾", 6" and 8" I.D. air tubes.

Replacement Valves

Monarch piston type pressure regulating and cut-off valves are available in several models to suit most replacement needs. G-49 valves can be mounted in any position and piston will not jam from dirt. Contain no bellows or diaphragm to break or corrode.

Write for Catalog D

MONARCH MFG. WORKS, INC.
EAST WESTMORELAND AND SALMON STS.
PHILADELPHIA 34 PENNA.

Philad. Natural Gas For Enrichment Only

IN AN EARLY AUGUST hearing before the Federal Power Commission in Washington, Hudson Reed, president of the Philadelphia Gas Works stated that starting August 1, 1948 his company is to receive from Texas Eastern Transmission Corp., operators of the Big Inch lines, a minimum of 60 million feet a day of natural gas.

He explained, however, that this will not be sold as straight natural gas, due to its small quantity, and that it will be used exclusively for enrichment of manufactured gas, displacing oil enrichment. Moreover, he pointed out that selling straight natural gas would involve prohibitive expense in changing present home equipment to handle it.

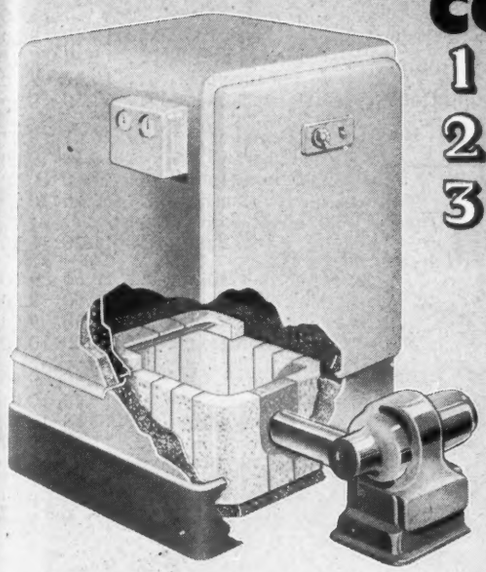
Eleven Companies Form Joint Foreign Venture

THE AMERICAN INDEPENDENT Cil Co. has been incorporated in Delaware by eleven oil companies to undertake foreign development operations, particularly in the Middle East, according to an August 19 announcement from Bartlesville, Okla., home of Phillips Petroleum Co., one of the ringleaders. Authorized capital is $100 million, with ten million paid in at the start.

Ralph K. Davies, former head of P.A.W., is president. Vice-presidents are J. Howard Marshall, president of Ashland Oil and Refining, K. S. Adams, president of Phillips, and Sam B. Moser, president of Signal Oil.

The incorporators are J. S. Abercrombie, Houston, Tex.; Allied Oil Co.

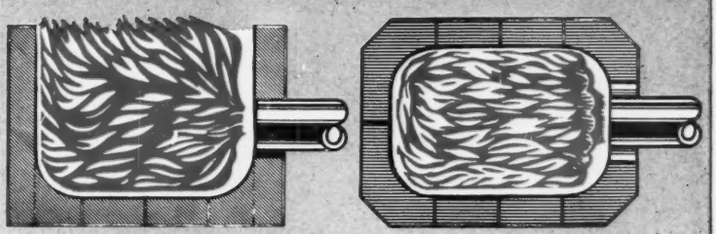
A. P. GREEN *gives the* INSTALLATION MAN *what he wants* ... *Streamlined* COMBUSTION CHAMBER



1 Easily and Quickly Installed

2 Bottom Integral with Side Tile

3 Economical—Quiet Operation

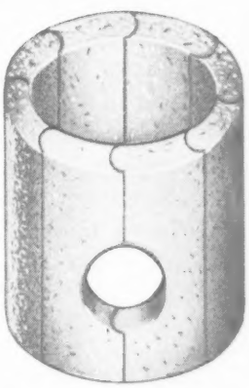


The inner countour of the Streamlined Chamber conforms with the natural shape of the flame. There are no dead corners or waste space to prevent complete combustion.

In most sizes the "L" shaped tile of the Streamlined Chamber form the sidewalls and bottom at the same time. A bottom tile is furnished for extremely large sizes. Installation time and costs are really "streamlined," no extra tile to buy or bottoms to build.

The Streamlined Combustion Chamber can be readily adjusted to practically every size and type of domestic furnace. Extension or corbel tile for additional height are available.

Your customers will appreciate the economies and quiet operation of the Streamlined Chamber and you will like the ease of installation.



PERFECTO
Combustion Chamber

The A. P. Green Perfecto Combustion Chamber is the practical, economical solution to many home owners' oil conversion problems. Installation is simple and a small number of easily fitted tile comprise the entire chamber.

It is extremely flexible—chambers for nearly every type and size of domestic boiler or furnace can be assembled from the four basic tile shapes. Circular chambers as small as 12 inches inside diameter and elongated chambers as narrow as nine inches inside width can be formed.

The Perfecto Combustion Chamber operates quietly and efficiently. Sound design and high quality combine to give a long, economical life.

A single source will supply you with everything you need to install A. P. Green Streamlined or Perfecto Cumbustion Chambers—including block and loose wool insulation, insulating cements and mortars.

An A. P. Green distributor located near you offers prompt delivery and personal attention. Look for his number in the classified section of your telephone directory or write direct for more information.

A. P. GREEN FIRE BRICK CO.

MEXICO, MISSOURI, U. S. A.

DISTRIBUTORS IN THE PRINCIPAL CITIES OF THE WORLD

A. P. Green REFRACTORY PRODUCTS

SERVE THE WORLD'S INDUSTRIES

of Cleveland, Ohio; Ashland Oil & Refining Co. of Ashland, Ky.; Ralph K. Davies, San Francisco; Globe Oil & Refining Co. of Wichita, Kans.; Hancock Oil Co. of California; Honolulu Oil Corp. of San Francisco; Los Nietos Co. of Los Angeles; Phillips Petroleum Co. of Bartlesville; Signal Oil & Gas Co. of Los Angeles, and Sunray Oil Corp. of Tulsa.

Directors of the new corporation elected recently include K. S. Adams, Vernon Barrett, Jack Blalock, L. A. Cranson, Davies, Don Emeory, Paul Endacott, Russell H. Green, John W. Hancock, Howard Marshall, A. C. Mattei, Sam B. Mosher, I. A. O'Shaughnessy, Phillips, Will J. Reif, W. W. Vandeveer, and C. H. Wright.

◈

U. S. Department of Labor Fueloil Prices June

FIELD INVESTIGATORS for the Department of Labor monthly check prices of principal fuels in several cities in each section of the country. Getting retail quotations from various supplies in each market, the prices are averaged and published. Those in the table that follow were taken June 15 (cents per gallon):

	Range	No. 1	No. 2	No. 3
Boston	11.30	11.15	9.40	..
Bridgeport	10.80	10.42	9.20	..
Fall River	..	..	9.90	..
Manchester	12.30	11.80	9.90	..
New Haven	..	..	..	..
Portland, Me.	11.20	11.20	9.50	..
Providence	..	10.92	9.36	..
Buffalo	12.20	..	11.00	11.00
*Newark	10.80	10.80	9.20	..
New York	..	11.32	9.53	..
Philadelphia	..	10.62	9.16	..
Rochester	..	12.30	10.16	..
*Des Moines	..	10.65	10.12	10.12
*Kansas City	..	10.10	9.69	9.21
Minneapolis	11.20	11.20	10.50	10.50
Omaha	..	10.50	10.00	10.00
St. Louis	..	..	..	..
St. Paul	11.20	11.20	10.50	10.50
Baltimore	..	10.60	9.70	..
Norfolk	..	11.00	9.30	..
Richmond	..	11.30	9.50	..
Washington	..	11.10	10.10	..
Charleston, S. C.	..	11.80	9.50	..
Jacksonville	..	11.90	10.45	..
Savannah	..	12.18	10.57	..
**New Orleans	..	11.33	9.89	9.90
Portland, Ore.	..	10.75	9.25	5.24
***San Francisco	..	10.46	8.92	5.00
**Seattle	..	11.24	9.69	5.40

*Price includes 2% sales tax.
**Price includes 3% sales tax.
***Price includes 2½% sales tax.

◈

Brooklyn Gas Asks Raise

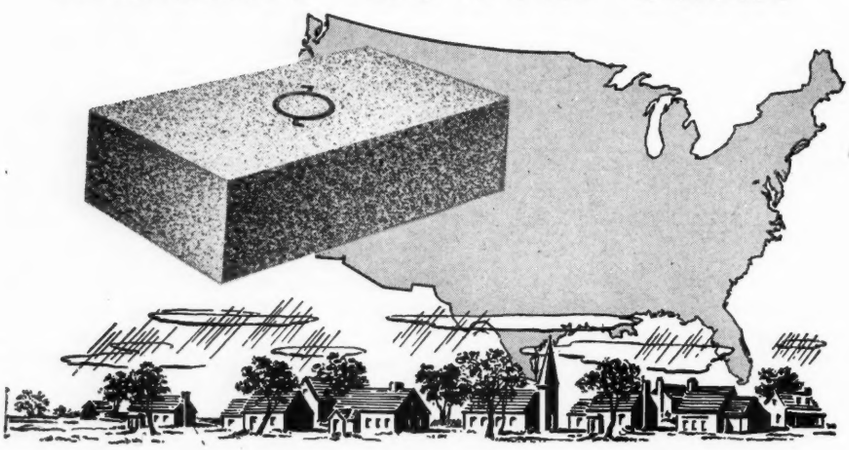
THE BROOKLYN BOROUGH GAS CO. has asked the Public Service Commission for an increase in gas rates which will amount to between 15% and 20% for home heating users. There are small increases requested for all gas users but the principal effect will be on heating. To users above 9,900 ft. a month the rate is raised from 50¢ to 60¢. The average home heating customer uses four or five times that amount.

◈

New Home Prospects Willing To Pay More

PROSPECTIVE NEW HOME buyers expect to pay, on the average, $9,269 for the home they buy, according to a broad scale July survey by Small Homes Guide, Washington. This represents a very sharp rise during the past three years. Going back to February 1944 the average home buying prospect wanted to pay $5,110; in July 1946 he expected to pay $7,925; in January 1947 the average expected price was

Let "A Quarter of a Million Families" Be Your Guide

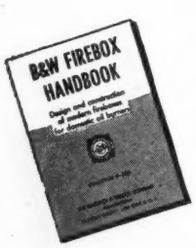


Yes, more than a quarter million families are getting oil heating comfort at a much lower cost because wide-awake and alert dealers have provided them with B&W Fireboxes.

This figure carries a vital sales message for you. It shows that dealers and customers all over the country recognize the advantages of B&W Insulating Firebrick. It proves that they are "sold" on the Fireboxes that —

1. Save fuel, due to more efficient insulation.
2. Minimize odor, soot and smoke.
3. Assure smoother, quieter burning.
4. Respond quickly to thermostat by reaching temperature quickly from a cold start.

Follow this lead to increased sales and profits—by showing your customers the benefits of B&W Fireboxes.



Send Today
for the
B&W FIREBOX HANDBOOK
a sure guide to customer satisfaction and more sales.

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B&W 80 FIREBRICK • B&W JUNIOR FIREBRICK
B&W 80 GLASS TANK BLOCKS • B&W INSULATING FIREBRICK
B&W REFRACTORY CASTABLES, PLASTICS AND MORTARS

OTHER B&W PRODUCTS
Stationary & Marine Boilers and Component Equipment
Chemical Recovery Units . . . Seamless & Welded Tubes . . . Pulverizers
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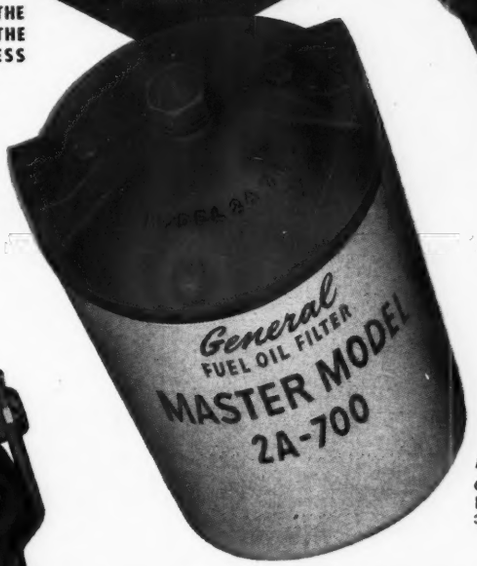
THE HOTTEST ITEM IN THE FUEL OIL BUSINESS

GENERAL FILTER IS THE 5-STAR LEADER IN THE FUEL OIL BUSINESS

STANDARD MODEL 1A-25
IDEAL FOR SMALL HOMES, SPACE HEATERS AND HOT WATER HEATERS

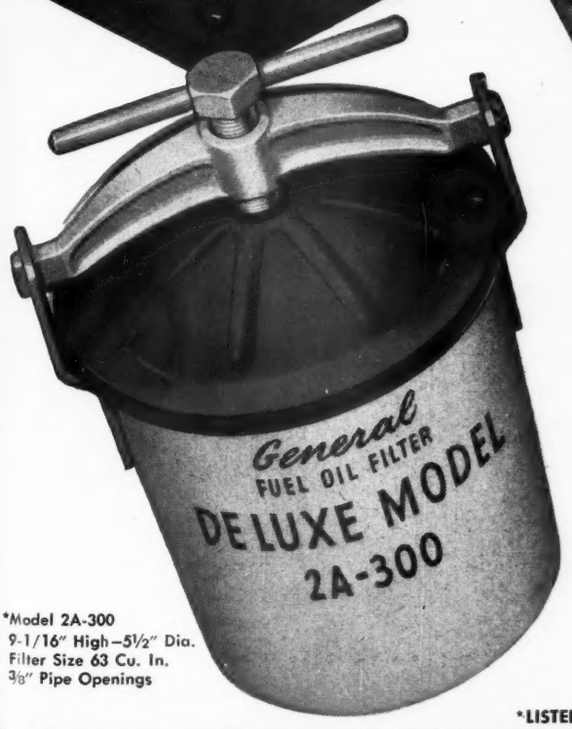
*Model 1A-25
4¾" High—3½" Dia.
Filter Unit Surface 31 Sq. In.
⅜" Pipe Openings

MASTER MODEL 2A-700
ADEQUATE CAPACITY FOR AVERAGE SIZE AND LARGE HOMES



Model 2A-700
6¼" High—4-5/16" Dia.
Filter Unit Surface 72 Sq. In.
⅜" Pipe Openings

DELUXE MODEL 2A-300
JUMBO SIZE FOR LARGE SYSTEMS AND DIRTY TANKS



*Model 2A-300
9-1/16" High—5½" Dia.
Filter Size 63 Cu. In.
⅜" Pipe Openings

WHEREVER FUEL OIL IS USED INSTALL A *General*

Service companies from coast to coast are proving that General Fuel Oil Filters are the most needed and outstanding accessory ever offered in the fuel oil burner field. Every installation is a proven profit maker. Every installation means added, periodic revenue through cartridge replacements. Service companies and contractors further add that they save thousands of dollars each year by avoiding troublesome call-backs caused by clogged nozzles.

Not all the benefit and profit is on the contractor's side — the customer gets cleaner burning fuel and is not inconvenienced by shut-downs caused by clogged burners. These facts make General Filters easy to sell and easy to increase profits — a good reason to *install a General wherever fuel oil is used!*

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GENERAL FILTERS INCORPORATED **GENERAL FUEL OIL FILTER** 12890 WESTWOOD AVE. DETROIT 23, MICHIGAN

CANADIAN FACTORY BRANCH: GENERAL FILTERS CANADA, 173 STRACHAN AVE. • TORONTO 10, ONTARIO

FACTORY REPRESENTATIVES: WILLIAM B. FORREST, Detroit, Mich.; WILLIAM J. DEBLER & SONS, Newark, N. J., Philadelphia, Pa., Brookline, Mass.; V. B. KATHE, Vancouver, Wash.; W. V. NUTTALL COMPANY, Salt Lake City, Utah; B. E. HOWENSTEIN, St. Louis, Mo.; L. E. SCHULEIN COMPANY, Chicago, Illinois; GRANSE CORPORATION, St. Paul, Minn.; RICHARD BARTHELMESS SALES COMPANY, Jacksonville, Fla.; T. C. FRENCH COMPANY, Akron, Ohio; A. G. ALLEN COMPANY, Indianapolis, Ind.; JEFF A. HEDDEN COMPANY, Atlanta, Georgia.

$7,916 and now it's $9,269. The rise in estimated price is so rapid as to show that the top limit has not been reached.

To the question on every monthly SHG survey: WHAT DO YOU INTEND TO PAY FOR YOUR NEW HOME? readers gave the following replies:

Over $10,000—	20.3%
$10,000—	20.9%
$8,000—	24.5%
$6,000—	11.4%
Under $6,000—	11.4%
Undecided on price—	4.1%
Will modernize present home—	7.4%

Three possible explanations for this average price jump are:

1. the July 1 rent bump of 15% and the possibility that there will be no rent ceiling at all after 1948, makes home ownership seem less costly;

2. home planners becoming convinced that high prices are not just a short, fat postwar spurt, but something here to stay for a while;

3. relaxation of ceilings this year on size and cost of new homes has let higher income groups into the active home building market.

LIGHT WEIGHT . . .
MORE FLEXIBLE
EASY TO HANDLE

"NEWTYPE CORD" Fuel Oil Hose

Now made with a *new brown cover* . . . stronger, tougher, more wear resistant . . . to give greater protection to the entire inner hose construction. This means *longer service life* for every length . . . and a more profitable return on your hose investment.

This newest "Newtype" is more flexible, too . . . easier than ever to carry out and re-reel. All the other familiar advantages of the hose are still there . . . kink-proof, non-flattening construction, assuring a full orifice when hose is curved; no cover separation; synplastic, oilproof tube.

It all adds up to *quicker* deliveries . . . *more* deliveries per day . . . *better* profits from every truck in service.

Contact Our Nearest Branch for Prices.

GOODALL RUBBER CO., INC.

THE GOODALL-WHITEHEAD COMPANIES

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Oil Leads All Fuels in Philadelphia Preference

FUELOIL continues to be the most preferred fuel for home heating in Philadelphia, according to the 1947 survey of the market by the *Philadelphia Evening Bulletin*. Preference for oil increased from 208,704 families, or 41.2% in 1946, to 215,202 families, or 42.4% of the market in 1947. Gas is second best in the public mind, up to 41.5% now, compared with 38.8% last year. Coal, coke and district heating, in that order, are poor runners-up, and have lost ground during the year.

Exactly 21% of all families now heat with oil in Philadelphia, compared to 19.2% a year ago. Gas is up to 5.3% at present against 3.4% last year, while coal has dropped from 69.6% in 1946, to 65.8% this year. A summary of fuel users, and the fuels they prefer is shown in the table.

	Use		*Prefer*	
	1947	*1946*	*1947*	*1946*
Oil	21.0%	19.2%	42.4%	41.2%
Gas	5.3	3.4	41.5	38.8
Coal	65.8	69.6	14.4	17.8
Coke	7.8	7.5	1.6	1.8
District	.5	.6	.3	.5

Bureau of Standards Has Building Division

A NEW DIVISION of Building Technology has been established at the National Bureau of Standards, according to an announcement by Dr. E. U. Condon, Director of the Bureau.

By no means a finished organization, the new division is made up of a number of sections and parts of sections which have come to be exclusively concerned with various phases of building technology. It is felt that a unified attack on building problems can be more effectively achieved by concentrating these sections in a single division.

The nucleus of the new division consists of five sections: structural engineering; fire protection; heating, ventilating and air conditioning; exterior and interior coverings; and codes and specifications. The structural engineering section will deal with the strength, stability, and stiffness of buildings and the structural elements of buildings. The fire protection section will continue its work on fire resistance of building construction, the fire hazard of building contents, and fire detecting and extinguishing equipment.

Full capacity and complete control at all speeds...

BUCKEYE FUEL OIL DELIVERY NOZZLES

No. 483-X—Small Fuel Oil Delivery Nozzle Valve

No. 782
Fuel Oil Delivery Nozzle
Valve with No. 591
Inlet Check Valve

These Buckeye Nozzles feature graduated notches in the rear guard which hold lever open at any one of three desired speeds. The operator has complete control at full or partial flow. These nozzles work equally well on pressure or gravity lines.

No. 782 is widely used for large volume delivery while No. 483-X, being smaller, is suitable for most general fuel oil and kerosene delivery applications.

These nozzles are sturdily constructed throughout and reinforced at points of wear for long life.

Mail the coupon for details about these and other Buckeye Fuel Oil Delivery Nozzles.

Buckeye

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Quality Valves and Fittings
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fuel oil & oil heat

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356 East Third Street
Dayton 2, Ohio

Please send complete information on Buckeye Fuel Oil Delivery Nozzles.

NAME _____

ADDRESS _____

CITY _____ STATE _____

Division of Omaha Families According to How Their Homes Are Heated

Group	COAL OR COKE				OIL				GAS			
	Per Cent		Number		Per Cent		Number		Per Cent		Number	
	1947	1946	1947	1946	1947	1946	1947	1946	1947	1946	1947	1946
$50 rent and up..	37.1%	38.3%	8,093	8,628	38.1%	38.1%	8,315	8,580	25.1%	22.7%	5,480	5,350
$40 to $50 rent..	67.0	68.3	13,476	13,905	16.3	15.3	3,281	3,110	16.6	18.5	3,345	3,354
$30 to $40 rent..	79.6	84.3	18,379	18,882	10.2	8.1	2,358	1,817	10.6	9.5	2,452	1,712
Under $30 rent..	81.9	83.3	14,589	14,575	13.6	13.7	2,422	2,396	5.0	2.4	892	529
*Totals	65.8	67.6	54,537	55,990	19.8	19.2	16,376	15,903	14.7	14.7	12,169	10,933

*Totals equal slightly more than 100% because a few families use more than one kind of heat.

Omaha Shows Oil Gains

THE OMAHA *World-Herald*, in publishing its 1947 Consumer Analysis, includes a table of comparisons between 1946 and 1947 of fuels used for heating by various rental value housing groups. With gas stationary over the two years, with coal declining slightly, only oilheating showed a gain . . . from 19.2% of homes to 19.8%. This is not a large gain, but it is commendable in view of the strides made by gas in recent years in Nebraska. The table appears above.

TRI-ROTOR PUMPS HANDLE SINCLAIR PRODUCTS
Another leading oil company using Yale & Towne's TRI-ROTOR positive displacement pump for truck tank and bulk station transfer work . . . is Sinclair Refining Company.
The reason for the wide acceptance of TRI-ROTOR Pumps is the unique pumping principle which combines, in one pump, the outstanding features of a rotary pump and a piston type pump—high volumetric efficiency and positive handling characteristics.
Variable Volume Control reduces over-heating, chewing, foaming, and agitating the liquid. With only three moving parts, operating and maintenance costs are low.
Three head styles: Solid, By-pass, Variable Volume—optional and interchangeable—for all truck pump installations. Size 5 G.P.M. to 200 G.P.M.
Send specifications for your pump requirements to The Yale & Towne Manufacturing Company, 213 Henry Street, Stamford, Conn., U.S.A.
ECONOMICAL — ROTARY ACTION
PROTECTIVE — PISTON ACTION
ONLY TRI-ROTOR GIVES YOU BOTH IN ONE PUMP
TRADE YALE MARK
MAKERS OF THE FAMOUS YALE LINES
OF LOCKS, HARDWARE, HOISTS AND INDUSTRIAL TRUCKS

Spot Check On Filling Of Customers' Tanks

INTERESTED IN THE current discussion of the storage position of customer fueloil tanks, Tom Brown, president of Sentinel Oil, Mt. Vernon, N. Y., had his people check the amount of oil in the tank of every customer from automatic delivery records, which have compensating adjustments for summer hot water users.

They were found to be 64% filled—not by number of tanks but rather by comparing total oil in them to their combined capacities.

It was an interesting surprise to discover that those families not using oil for summer hot water, or 20.2% of total customers, had their tanks better filled than were those who have summer hot water hookups. Among those without summer hot water needs, the aggregate tanks were 93% full. This meant that the trucks had filled them around the end of the heating season, and they stayed that way. Also, Brown is convinced that some of the industry's early day education on keeping tanks filled in summer to prevent corrosion is a factor in this situation.

The total storage capacity of all Sentinel customers is equal to 15.5% of their annual needs, while the Company's own bulk storage equals 22% of annual sales, showing that if both dealer and customer storage could ever be completely filled, three-eighths of the season's needs would be in hand.

Among tank sizes, probably typical of Westchester County, Sentinel finds that it has 58% of 275 gal. size, 22% of 550 size, 18% hold 1,000 gal., and the remaining 2% are over 1,000 gal.

FUEL UNITS AND TRANSFORMERS

Increase Profit...Satisfy Customers...

Reduce Service Calls...

Webster Electric Transformers

Sure-fire instant ignition is assured when a Webster Electric Transformer is on the job.

Top performance of these units is assured by their painstaking construction. They are made with mica insulation, on high voltage coil, that does not deteriorate with age or as the result of high temperatures. Coils are wound with exacting care and assembled on a laminated core of non-aging material. Radio interference is reduced to a minimum by use of a metal shield. Webster Electric Transformers are easily interchangeable and three sizes offer wide adaptability.

WEBSTER ELECTRIC

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Established 1909

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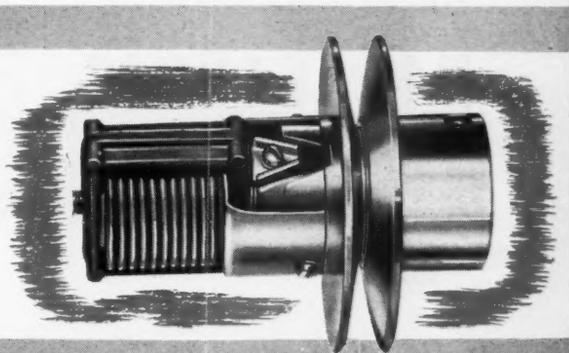
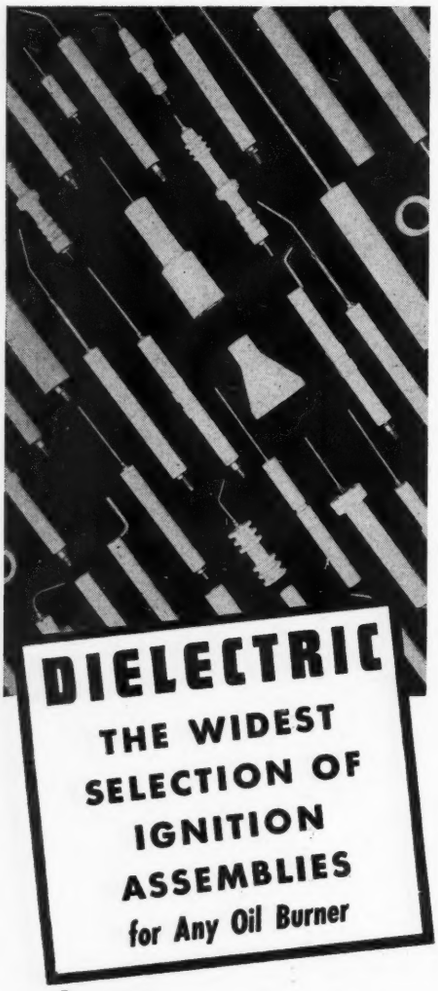
"Where Quality is a Responsibility and Fair Dealing an Obligation"

This newly perfected, thoroughly tested, Webster Electric product is a thermostatically controlled device, easily installed in any warm air furnace, which assures just the right amount of air flow at ALL times.

Introduce your warm air heating customers to THERMODRIVE. It is simple and practical in construction, easy to install, and will give years of trouble-free performance.

Send for full information today.





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INSULATORS • CABLES

Incorporate Dielectric ignition assemblies into its design and you assure your oil burner of the best in electrodes, insulators, bus bars or cables. All parts or assemblies are guaranteed to meet Underwriters' Laboratories, Inc., requirements.

Standard electrode assemblies in a variety of insulator lengths are available for quick delivery. Special tip designs take only a little longer to produce.

Dielectric high tension cable assemblies and bus bars are also available for any transformers or electrodes on short notice.

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Seattle Discourages Electric Heating

ESTABLISHMENT OF A NEW rate of 1.8¢ a kilowatt hour for home heating was recently announced by the electric utility in Seattle, although present users, or new ones who install electric heating equipment during the remainder of this year will not have to pay the increased rate for five years.

The present rate is $5.00 for the first 400 Kwh, 7 mills for the next 2,100 and 9 mills thereafter, which means that most of the heating load has come within the 7 mill rate.

The announced rate increase is intended to discourage home heating in the Puget Sound area, largely because of the difficulties arising from its seasonal nature. The utility finds large investment tied up in generating equipment needed to handle the winter peak load, with insufficient outlet for that capacity in warm months, and it feels that the heating load must be made to stand on its own . . . in other words, to carry the full capital load involved in the extra capacity needed for the peak months.

Electric heating is now, and is expected to remain, inexpensive in the eastern part of the state where the power is from Grand Coulee dam, but in the heavily populated coastal cities it appears on the way out.

Government Made Millions On Pipelines Operation

MILLIONS OF DOLLARS accrued to the Federal Government from one wartime activity, at least, the Big Inch and Little Big Inch pipelines. At the same time consumers profited by a saving in transportation cost of $290,000,000 in the period from January 1943 through October 1945. Chairman John D. Goodloe, of the Reconstruction Finance Corporation, in officially terminating construction and operating agreements, revealed these facts in a letter "of commendation and appreciation," to W. Alton Jones, President of Cities Service Company, who headed up War Emergency Pipelines, Inc., which built and operated the Big and Little Big Inch.

"From both military and economic standpoints, the lines more than met expectations," wrote Mr. Goodloe. The net return to the Government was approximately $182,000,000 exclusive of depreciation. This compares with a Government capital investment of $145,000,000, which is substantially the sum for which the system was recently sold. The government also effected a heavy saving in oil transportation directly resulting from the $290,000,000 difference in the costs for pipeline deliveries and the more expensive charges which would have been necessary for tank car deliveries provided tank cars could have done the job.

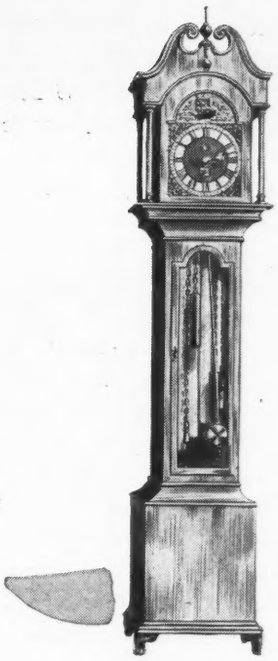
Henry M. Reed

HENRY MORRISON REED, 66, chairman of the board, American Radiator & Standard Sanitary Corp., died August 12 in Allegheny General Hospital, Pittsburgh, after a long illness. His entire business career had been devoted to American-Standard and its predecessors, commencing in 1901 when he took a part-time job with Standard Mfg. Co. to play on the company's football team, while still in school. When Standard Sanitary absorbed the company in 1902, Mr. Reed was named enamel mixer and entrusted with a number of secret formulae. Successive promotions followed, until in 1907 he became assistant manager of Standard works, Pittsburgh. He progressed to the position, in 1928, of first vice president and chairman of the executive committee.

In the following year, Standard Sanitary and American Radiator merged and Mr. Reed was named president of the Standard affiliate and a vice president and director of the combined company. In 1938 he was named chairman of the board and president of the amalgamated corporation and held that position until 1946 when he relinquished the presidency, but retained the chairmanship.

He is survived by his wife, and four children, all married. Mr. Reed had eight grandchildren.

Lawrence F. Neely has been appointed district manager, southwest territory, Duo-Therm Div., Motor Wheel Corp., Lansing, Mich. Territory embraces Colorado, New Mexico, Nebraska, Oklahoma, Texas and Wyoming. Mr. Neely is a native of Dallas, Tex.



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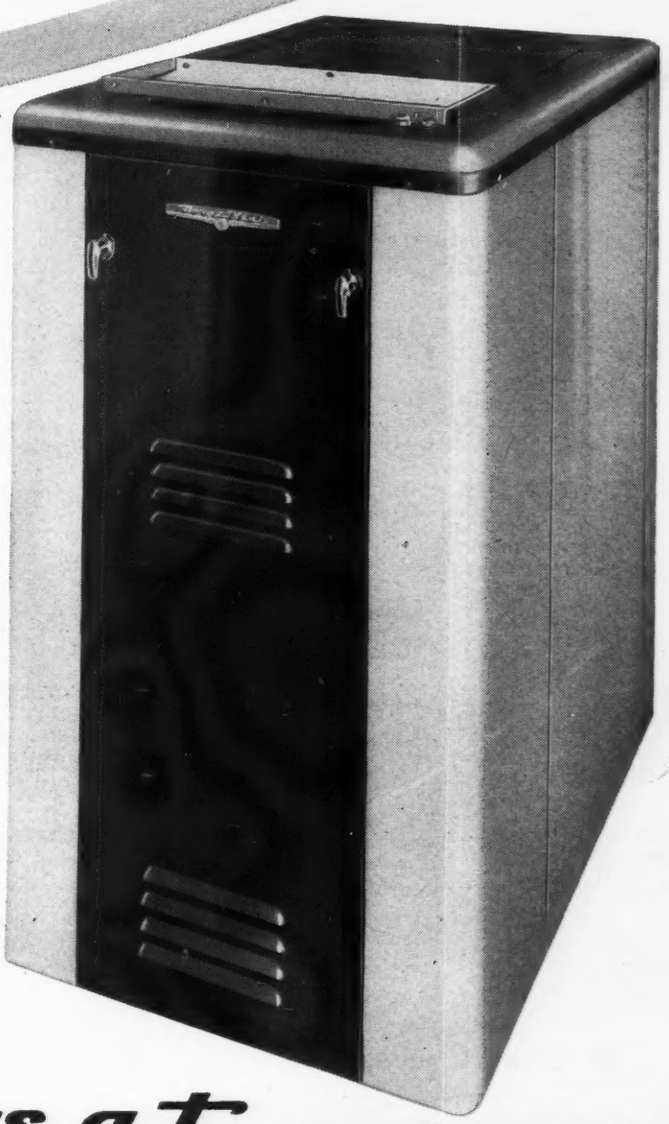

NORGE HEAT
WINTER AIR-CONDITIONER
with
VACUUM-DRAFT
and STEADIHEAT

With NORGE-HEAT's exclusive VACUUM-DRAFT, heating performance *never* varies, no matter how the weather changes. That's why these new air-conditioning furnaces—and they alone—can produce the more even, more consistent kind of heat called STEADIHEAT!

Instead of *pushing* air into the fire chamber the old way, VACUUM-DRAFT *pulls* it through. As a result, the draft is *precisely regulated* by the *blower*. Combustion is never thrown out of balance by variations in chimney drafts. To your customers, this means far more even heat, and less fuel required to produce it. What's more, the heat is cleaner and free from fumes, since pressure in the combustion chamber is always lower than that in the house.

In VACUUM-DRAFT, you have an outstanding feature to sell . . . actually, the first basic advancement in home-heating in many years. It is one of many reasons why NORGE HEAT winter air-conditioners are the latest thing in fine heating equipment.

CONTROLLED · COMBUSTION

Norge Heat

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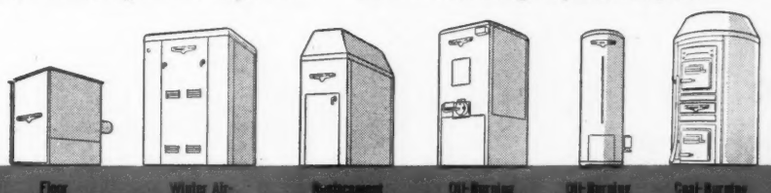

ENGINEERING B-W PRODUCTION

SEE Norge Heat BEFORE YOU BUY

fuel oil & oil heat

Sohio Finds Oil Twice In Same Oklahoma Well

MORE OIL than originally discovered in Standard Oil Co. (Ohio) No. 1 Howard well in the Eola Field in Garvin County, Oklahoma, has been struck by extending the hole to the McLish sand for a total depth of 10,818 feet. The original strike about the first of the year brought in a new and rich oil field. At that time the well flowed 39 gravity oil through a 1½ in. choke at the rate of about 2,400 barrels a day. At the lower horizon the well produced 43 gravity oil at the rate of 672 barrels a day through a ½ in. choke at the bottom of the well. Pressure is 2,300 pounds at the bottom of the choke.

◈

More Heat in Gas To Save Big Expansion

GAS UTILITIES working through the American Gas Association have authorized an initial expenditure of $100,000 for construction of an experimental water gas plant expected to double Btu content of manufactured gas. The 1,000 Btu gas will require about 25% more oil than presently used to make 535 Btu gas, but the companies are attempting to find an economical way to deliver more heat to carry the load without greatly expanding plant facilities.

Experiments are being conducted under contract with Consolidated Gas, Electric Light and Power Co., Baltimore.

Edwin L. Hall, coordinator of gas production research for the association and designer of the new Hall process, explained that a regenerative-cycle system providing for the retention of some of the air used in the gas-making process for reuse in its heated state insured maximum carbon control and fuel use in producing gas of around 1,000 Btu.

The unit, built to produce 5,000,000 to 6,000,000 cubic feet of gas a day, will burn bunker oil.

A gas utility can temporarily increase the Btu content of its output or supplement natural gas by adding propane-air gas to its gas from other sources. This requires a type of special standby unit which is widely in use throughout the country today.

Economics promised by the Hall water-gas unit make it a possible successor to this arrangement under certain circumstances.

The gas utility industry is also studying the addition of industrial type hydrocarbon cracking units at the ends of long transmission systems as another means of economically obtaining facilities for peak or stand-by gas. The A. G. A. is testing such a unit in cooperation with Philadelphia Electric Co., at Chester, Pa., and Long Island Lighting Co. is planning to install several on Long Island.

◈

Oil Drilling is Slowed By Shortage of Steel

EASEMENT OF MATERIALS available to industry, which was anticipated to seek a normal level soon after the conclusion of the war, has not been extended to the oil industry which still lacks a proper balance between development materials and demand for products. This conclusion has been reached by a study made by the Materials Shortage Committee of the Independent Petroleum Association of America, recently completing a thorough investigation of casing and other tubular

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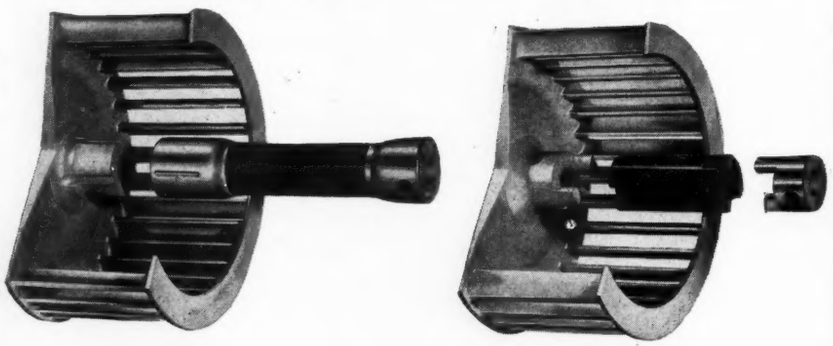
BLOWER WHEELS

Cast in One Piece ● Without Rivets



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● All Standard Sizes

● Natural Finish ● Non-Corrosive

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The NEW *Master Kraft* oil burner is in production

FIRST IN THE FIELD WITH NEW BURNER DESIGN

Here is truly the first postwar oil burner to hit the market—will satisfactorily burn 100% catalytic oil with same high efficiencies! It's *the* answer to today's heating problems. Results of tests show that savings on fuel are as high as 20%.

Get on the Master Kraft Bandwagon—get the cream of burner sales with this new burner. *Be first* with the NEWEST in oil heat.

The coupon below will bring you full information on how you may get a Master Kraft franchise . . . Mail it today!

Master Kraft

Reg. U. S. Patent Office

MANUFACTURED BY

HARVEY-WHIPPLE, INC.

SPRINGFIELD — MASS.

Harvey-Whipple, Inc.
Dept. FO-15
Springfield, Mass.

Gentlemen:
Please send me information about a Master Kraft franchise.

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CITY ..... STATE .....

goods. J. E. Warren, Chairman of the Committee, and an operator of Midland, Texas, has stated that the Committee survey indicates 1,803 rotary drilling rigs are in active operation now as compared with 1,840 at the wartime peak. This slight decrease, Warren stated, is attributable directly to a continuing scarcity of tubular and other steel goods needed by the production division of the petroleum industry.

The causes of this shortage of pipe and casing are manifold, it was determined by the Committee, but a great share of the shortage is due to a vast, postwar increase in export pipe and casing now being used in the development of oil in foreign fields rather than for the development of oil here in the United States.

The *Independent Monthly*, official publication of the Independent Petroleum Association of America, in its July issue, named steel shortages as one of the most critical problems of the domestic industry. In analyzing exportation of steel products of this classification, the quantity of casing and pipe being exported to Venezuela is six times greater than before the war. Mexico is receiving 14 times as much steel and the Middle East is receiving 15 times as much on the same basis.

Considerable publicity has been given some statements that portend an oil shortage. This is a continuation of the theory of the scarcity of oil preached to the public for many years. It is not generally realized, unfortunately, that on the sound basis of reserves the nation has more oil now than at any time in the history of the industry.

The domestic industry is being seriously handicapped in developing these proven reserves, and while the lack of steel is retarding drilling the demand for petroleum products continues to increase. Industry leaders do not believe it either logical or expedient to export steel to foreign nations, and in some instances to accept payment for this steel with money loaned to these nations, and then to buy from these foreign nations oil that should have been developed here at home with our own steel and by our own industry. However, despite hampering of development by misdirection of steel products a survey made in west Texas and New Mexico oil areas shows that the average drilling rig is completing 30 per cent more holes today than during the peak of the war.

Favoritism being shown foreign nations denies the domestic oil industry the materials needed to develop home reserves, and unless this situation is corrected it will inevitably shorten the supply of immediately producible crude. Industry leaders are confident that vast, untapped reserves will continue to be found, but the development of these reserves should not be curtailed by diversion of essential materials.

Backed with 32 years experience in serving the heating industry this veteran organization is now at your service - -

PUT HERCULES CHEMICALS TO WORK ON YOUR FALL CLEAN UP JOBS

HERCULES

- **HERCULES FUEL OIL SLUDGE SOLVENT**
  Non-injurious to metal and will prevent rusting, pitting and clogged strainers and nozzles.
- **HERCULES SOOT DESTROYER**
  Non-explosive, non-inflammable, harmless to heating systems; causes soot to ignite and burn itself away. Use with Hercules Soot Gun.
- **HERCULES BOILER CLEANER *(Liquid)***
  Ideal for cleaning new installations, for preventive treatment, or for thorough clean-up of old systems.
- **HERCULES OIL LINE CEMENT**
  Permanent plastic compound—not affected by oil.
- **HERCULES OIL BURNER PARTS CLEANER**
  Economy, safety, efficiency in cleaning all oil burner parts. A quick-dip cleaner.

Every HERCULES product has been especially developed for the service it performs. Hercules has a long established reputation for time-tested quality and high manufacturing standards. Ask your jobber for HERCULES CHEMICALS FOR OIL BURNER SERVICE. Write for full details.

HERCULES CHEMICAL CO., Inc.
332 Canal Street New York, 13 N. Y.

Jet Burner Fires Steam Powered Truck

ANOTHER USE for the jet burner developed by Calvin D. MacCracken, which created so much interest a year ago, has been revealed by a South Bend, Ind., release on a demonstration of a steam powered truck. Development on the truck burner is said to have been completed only six months ago.

The burner uses any type of liquid fuel, according to the announcement. Steam generated by the burner enters a small four-cylinder engine connected directly to

The heart of friendly SPARK *heat*

This is the trademark of the SPARK oil burning heater. It is both a mark of SPARK quality and a symbol of a well-known SPARK feature.

The *fan-shaped flame* is the heart of friendly SPARK heat. It is a clean, clear flame creating warmth with much of the cheerful quality of an open fireplace. The SPARK *fan-shaped flame* is typical of many superior features of the SPARK oil heater . . . fine performance, economy of operation, rugged, seam-welded inner construction, and compact size.

In production since 1934, tens of thousands of SPARK oil heaters supply friendly heat to homes throughout the nation. Heavy demand for these popular heaters, plus a shortage of high grade materials, currently limits availability. However, dealers interested in handling future SPARK business are invited to direct correspondence to the manufacturer.

SPARK OIL BURNING HEATERS

A product of HAMMER-BRAY CO., LTD.
2619 E. 12th Street • Oakland 1, California

fuelail & oil heat

the truck's rear axle. Also steam operated is an auxiliary motor that runs the generator and water pump.

◈

Broker Analyzes Reserves Of 25 Leading Oil Companies

POINTING UP the importance of oil reserves in the future for leading oil companies, particularly at the present time when the outlook is for continued record production and consumption of petroleum products, Bache & Co., members of the New York Stock Exchange, in a comprehensive study of the oil industry estimate the proven oil reserves, domestic and foreign, of twenty-five leading American companies.

In a special tabulation contained in the study, the firm breaks down the estimated total proven reserves of the individual companies to a basis of barrels per share, and also expresses the value of the reserves in dollars per share. As a further step, working capital and fixed assets (other than reserves of oil) less funded debt and preferred stock are calculated on a per-share basis. The figures may be compared directly with the market price of the stock, carried in a separate column.

As evidence of outstanding growth, the study states that the demand for gasoline has increased in every year, with only three exceptions, since the automobile came into general use in this country. In addition, distillate and fuel oils have shown continuous growth, with the long-term shift from coal to oil.

The study also summarizes operating and earnings statistics of each of the companies during the ten years through 1946, and during the first quarter of 1947. In addition, Bache & Co. rate the stocks of the twenty-five companies from the standpoint of securities of (1) better grade, larger companies, (2) better grade, smaller companies, and (3) medium grade, smaller companies, or (4) more speculative companies.

◈

Mortgage Applications At New High in June at FHA

FEDERAL HOUSING ADMINISTRATION in June received more applications for mortgage insurance than in any previous month in its experience, Commissioner Raymond M. Foley has announced.

During June applications involving new construction covered a total of 48,755 new units under all sections of the National Housing Act, Mr. Foley said. This was the largest volume of units in any single month, surpassing the previous high of 43,246 new units established in March 1942. The figure was more than five times the volume received in June a year ago and represented an increase of nearly 25% over April 1947, the previous high for the year.

Applications covering multi-family rental housing showed a particularly sharp gain in June, with 20,777 units in 472 projects applied for under the Section 608 rental housing program. This was 45% above the previous high in April and was nearly twice the number involved in applications under this part of the Act during the seven months of 1946 during which the Veterans Emergency Housing Program was in operation.

The remaining new construction units, amounting to 27,978, were in one to four-family structures under Sections 203 and 603 of the Act.

IT'S HERE!

FOR THE FIRST TIME

WITH THE PATENTED SHELL DEVELOPMENT CO. COMBUSTION HEAD

The TRU-HEET OIL BURNER

Mfgrs. of Fine Oil Burners Since 1928

Model DL-S

- CO_2 AS HIGH AS 15% WITH NO SMOKE
- FUEL SAVINGS AS HIGH AS 30% OVER CONVENTIONAL GUN TYPE BURNERS
- FIRST TO PASS UNDERWRITER'S—LABORATORIES AND U. S. GOV'T. COMMERCIAL STANDARD CS-75-42
- OIL RATES WITH SINGLE ADJUSTMENT—FROM 0.75 TO 2.00 G.P.H.
- MANY OTHER FEATURES NOT FOUND IN OTHER BURNERS

If you are really interested in this high class and efficient oil burner, then get your dealer's franchise early.

OTHER MODELS UP TO 15 G.P.H.

DIRECT YOUR INQUIRIES TO

TRU-HEET COMPANY

542 MILLER AVE.

TRENTON, NEW JERSEY

A "Dealers' Dozen" of the Hottest Selling Points in the Heating Industry

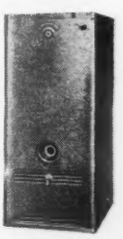
No one expects any product to sell itself, unassisted. Think how much the sales effort is lightened, however, when you've got a hard-hitting and provable story like this to tell.

SUPERFEX "Round the Clock" Heating offers...

1. Exclusive "Homogen-Air" system. Has three-stage, non-stop fire, automatic variable speed blower.

2. Two furnaces in one.

A. Peak (high fire) capacity for the coldest weather demand.
B. Automatic cut-back to economical low and pilot fire operation to maintain comfort during "in between" mild weather.



3. Healthful "live air" action.

4. Avoids layer cake separation of heat, which means . . .

A. Uniform temperature, floor to ceiling, all rooms.
B. Warm floors. No "Cold leg zone".
C. All-over comfort.

5. Gas or oil-fired models. (Designed for it . . . not conversion burners.)

6. Proved fuel economy.

7. Summer Fanning and Filtering facilities.

8. Heavy, long-life construction throughout.

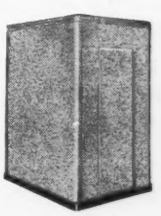
9. Scratch and chip-resisting finish. (Bonderized steel grips attractive baked enamel.)

10. A size and style for every type of home.

11. Companion line of "Thermaflow" non-blower models also with continuous three-stage fire.

12. Special units for popular basementless type homes.

13. Wide consumer acceptance based on long successful performance.



Plus

A Profit Protected exclusive franchise.*
Sound national advertising support.
Effective Dealer Help materials.
Quality and performance leadership insured by the finest development laboratory in the heating industry.
Backing by the big-name company with a 60 year history and a sure future.

*There are a few (and we do mean few) such franchises still open in good territories. Qualifications are simple, but specific.. Determination, Dependability, a bit of DO. If you've got 'em, plus a sincere Desire to build a permanent business, contact the home office without delay.

Superfex FURNACES

GAS OR OIL

PERFECTION STOVE COMPANY
7918-B Platt Avenue • • • • Cleveland 4, Ohio

Oil Battles Natural Gas In Roumanian Cities

NATURAL GAS COMPETITION is increasing in the larger industrial areas of Roumania, according to Adolph Barta, Timisoara, combustion engineer. This is increasing the demand for combination oil and gas burners for house heating as well as for industrial uses. Metal melting industries and other industrial applications are turning to natural gas it becomes available.

Residential oilheating in Roumania is most popular in three classes of buildings; (1) villas with 1 or 2 apartments of 3 to 5 rooms each; (2) apartment houses of 4 to 10 families with 2 to 3 rooms to each apartment, and (3) few block houses of up to 30 apartments of 2 and 3 rooms each. The first two classes of installations will be fired usually at less than 6 U.S. gallons per hour.

Industrial boilers are both horizontal and vertical in design with heating surface of from 40 to 2500 sq. ft. These are fired by a variety of burners using steam, low and high pressure air, or oil pressure, for atomization.

Industrial furnaces in the ceramic, steel, chemical and other industries generally are fired by non-automatic burners, mostly with air pressure between 350 and 700 mm water column (1 inch equals 25.4 mm).

The electrical characteristic in Roumania is overwhelmingly A.C. 220/380 V., 50 cycles; seldom is 500 V. Some smaller places have 220 V. D.C.

The generally available petroleum fuels, and their prices are listed by Mr. Barta in Lei per kilogram. At current exchange rates the Lei is .0006 cents. A kg is 2.2 pounds. It is pointed out that prices shown are the official prices fob Ploesti. Open market prices are about 100% above the official prices, which follow:

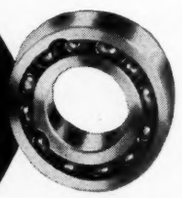
CFR (Roum. R.R. type)	Lei	2710 per kg.
CFR E2 Special	Lei	2477 per kg.
E3	Lei	3588 per kg.
Motorina (diesel oil) ..	Lei	4259 per kg.
Motor grade gasoline ..	Lei	15900 per kg.
Aviation gasoline	Lei.	18071 per kg.

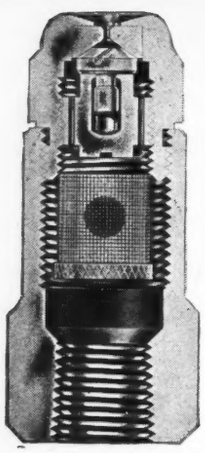
As a matter of interest, Mr. Barta also sends a table from a recent issue of "Romania Petrolifera" showing the computed purchasing power of 100 U.S. gallons of gasoline, in terms of other materials:

	Piping lbs.	Cement lbs.	Timber Cu. Ft.
1939	125	1280	37.4
1940	53	716	17.3
1941	55	360	9.6
1942	75	740	11.2
1943	80	600	8.9
1944	22.7	692	8.8
1945	20.8	572	10.0
1946	20.5	920	15.9
1947 (Mar.)	4.1	..	..

"Money won't buy happiness, Simmons. You want to be happy, don't you?"

Uniform as the Balls in a Bearing





BALLOFFET DESIGN NOZZLES by DELAVAN

You can depend on Balloffet Design nozzles—for dependable performance — less service — and outstanding efficiency.

ACCURATE!
Produced under the most rigid controls, each nozzle is tested and calibrated under standard conditions.

DEPENDABLE!
Ratings of capacity and spray angle are accurate and uniform. Dust-tight plastic containers keep nozzles clean.

EFFICIENT!
Brass body of nozzle conducts heat away faster; assures lower nozzle temperature, less carbon, fewer service calls.

Ask Your Jobber For The New Delavan Condensed Catalog No. 347

MEMBER OHI OIL HEAT INSTITUTE OF AMERICA

DELAVAN ENGINEERING CO.
Established 1937
DES MOINES 9, IOWA

HOTSTREAM *Draft-O-Stat*

THERE'S A DRAFT-O-STAT FOR EVERY REQUIREMENT

Model "A" DOMESTIC

The original Draft-O-Stat for automatic control of chimney draft in furnaces and boilers. Selected as standard by leading furnace and boiler manufacturers. Adjustable counterweight on flutter for precision control of draft. Available with or without thimble.

9 Sizes—7" to 20"

COMMERCIAL DRAFT-O-STAT

For use in apartment buildings, hotels, schools, small factories or office buildings. Can be used on natural draft or motor driven oil burners, hand-fired boilers, stokers and forced draft installations. Available with or without hand control.

4 Sizes—16", 18", 20" and 24"

INDUSTRIAL DRAFT-O-STAT

Sturdily constructed heavy-duty draft control for large heating plants. Available with or without breeching plate and thimble, and with or without locking device. Pays for itself on most installations out of one year's fuel savings.

3 Sizes—24", 30" and 36"

A 48 page Draft-O-Stat Manual, giving the complete story on barometric draft control, is yours for the asking.

Model "B"

DOMESTIC DRAFT-O-STAT – *New Design*

The new Model "B" Draft-O-Stat is the logical development of Hotstream Pioneering in draft control engineering. It represents the newest achievement in precision combustion control for the small heating plant. By barometric control of draft through adjustable, counterweighted flutter, it saves fuel, reduces smoke and soot, and improves operation of any furnace. Available in 2 sizes, to fit flue pipes from 6" to 9". Also available is the Model "BM" Motorized Draft Control for domestic installations.

HOTSTREAM AUTOMATIC DRAFT REGULATOR

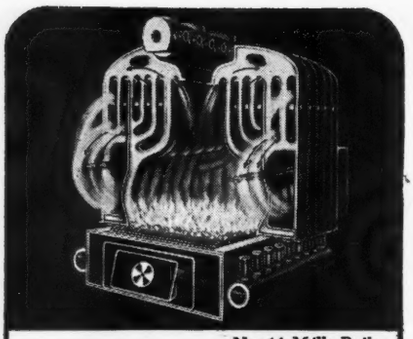
Model "CST" Automatic Draft Regulator is designed for use with fuel-oil burning water heaters, kerosene and gas water heaters, range burners and warm air circulating furnaces. Dual valve arrangement controls excessive stack drafts, also eliminating the possibility of down drafts which might blow out the fire. Available in 3", 4" and 5" sizes, in galvanized, black iron or aluminum.

Model "CST"

FUEL SAVING IS MORE IMPORTANT THAN EVER
This means increased sales and profits for dealers handling Draft-O-Stat.

THE HOTSTREAM HEATER CO.
6925 QUINCY AVE. • CLEVELAND 4, OHIO

Manufacturers of a complete line of gas-fired, electric, oil-burning and bottled-gas water heaters, and draft controls



No. 44 Mills Boiler

"There's a long, long trail . . ."

The hot flue gases in an H. B. Smith Cast-Iron Boiler rise directly to the highest surface of the boiler, across to each side, to the front through the upper flue passages, then to the back through lower channels, and finally up the chimney. It's really a long, long trail . . . and not a straight one.

Actually, the gases would rather rush directly to the chimney, but the efficient "Mills" design hinders them at every turn. Instead, they're scientifically-directed along paths which give them a chance to scrub against maximum heating surface and give up more heat.

That's the secret of Smith-Mills efficiency. The result is more heat per fuel unit . . . less fuel used . . . lower fuel costs.

It *pays* to specify H. B. Smith boilers for industrial, commercial, institutional and residential jobs. If you want to know more important H. B. Smith advantages, send for your free catalog.

H.B. Smith

CAST IRON BOILERS

THE H. B. SMITH CO., INC.,
68 Main St., Westfield, Mass.

Offices and Representatives in Principal Cities

Industry Groups

Activities of local and national industry associations are reported monthly in this department. Secretaries are invited to send reports of their Groups' activities to reach the editor by the 20th.

Replace Inefficient Burners Is Theme of OHI Campaign

A SUGGESTION was made by the OHI Fuel Oil Supply Committee at the July 8 meeting of Oil-Heat Institute of America, Inc., New York 16, N. Y., that a continuing campaign be undertaken to replace old, inefficient oilburning equipment to hold up industry dollar volume and improve burning efficiencies. Acting on the suggestion, A. E. Whitehill, national secretary, Distribution Division, has formulated a program, which was explained in a recently distributed bulletin.

He cited an estimate which declared that if the efficiency of the 3,000,000 power oilburners now installed could be increased only 10%, there would cease to be a transportation shortage in the fueloil industry. He points out also that replacement sales at this time will maintain the dollar volume of a dealer who is having trouble placing new oil contracts, and with savings possible with the new installations, will result in lower over-all fueloil consumption.

To implement a program along these lines, the bulletin advocates an all-out effort on the part of the individual members of the industry to:

"(1) increase efficiency on all existing oilburner installations.

"(2) see that all new installations are turned over to users in operating condition that guarantees the highest possible degree of efficiency.

"(3) replace, and quickly, all inefficient and worn out installations."

The entire membership of the Distribution Division received copies of the bulletin outlining the above program. Interested parties may secure copies from the Institute.

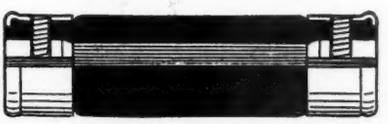
Warm Air Association Plans Cleveland Meeting in December

PRELIMINARY announcement of the 34th Annual Convention of the National Warm Air Heating and Air Conditioning Association reveals that the meeting will be held December 4 and 5, 1947 at the

CORRECT EXTREME MISALIGNMENT AT LOW COST

ONE PIECE RUBBER FLEXIBLE COUPLING

DAMPENS NOISE AND VIBRATION— CUSHIONS STARTING TORQUE



◀ RUBBER FROM END TO END ▶
NEOPRENE REINFORCED WITH NYLON

FLOATING BUSHINGS

Machined brass bushings are not integral with ferrule—To allow floating action—No die castings

New!

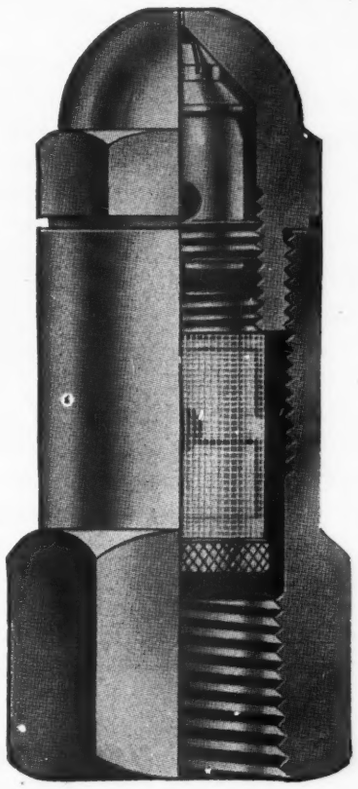
Cylindrically Ground On Center — Concentricity Assured

Lengths—1½" to 10"
Bores—5/16", ⅜", 7/16", ½", ⅝", ¾", 1"

Flexible Coupling Mfg. Co.
6220 South Eilis Ave.
Chicago 37, Ill.
Phone DOR. 2350

EDDINGTON OIL BURNER PARTS

do a First Rate job



TRIPLE TESTED NOZZLES

Because of their superiority, EDCO Oil Burner Nozzles are specified as standard equipment by leading oil burner manufacturers. One reason is because each nozzle is scientifically tested three ways: (1) for included spray angle, (2) for atomizations, and (3) for actual rated capacity. EDCO nozzles are made of the best grade of stainless steel. Another feature —large capacity, non-collapsible, cylindrical type monel strainers make cleaning seldom necessary.

In ordering, please give complete information about capacity, spray angle, quantity, etc.

AIR CONES and STABILIZERS

Here's teamwork that gives a better fire with greater efficiency. The stabilizer holds the electrodes and nozzle in firm position while the twist of the fins gives a swirl to the air flow which is carried thru by the air cone at just the right point for mixture with the nozzle spray.

SPECIAL NOTICE: EDCO Air Cones (Stabilizers to match) are now available in the following sizes: 3½" x 2¾", 3⅞" x 3", 4" x 3", 4" x 3¼", 4¼" x 3", 4½" x 3¼", 4¾" x 3¼", 5" x 3¼" and 6" x 5".

EDCO

EDDINGTON METAL SPECIALTY COMPANY

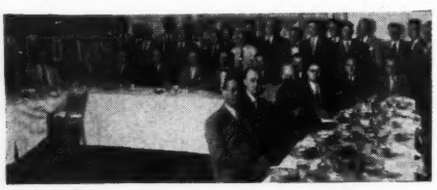
P. O. BOX K, EDDINGTON, PENNSYLVANIA

Hotel Cleveland, Cleveland, Ohio. A Program Committee, headed by Gene Brown, with M. I. Levy, H. L. Orton, I. L. Seith, H. S. Sharp and E. P. Hayes assisting, is preparing a program of speakers and events which will be announced later.

The announcement of the Convention is made now to permit those desiring to attend to secure hotel accommodations in plenty of time.

API District Committee Holds Washington Meeting

THIRTY-NINE representatives of the oil industry in the District of Columbia met at the first district-wide informational meeting of the American Petroleum Institute's Public Relations program at the Hotel Statler, Washington, D. C., on July 23. S. A. Parks presided.



Fayette B. Dow, member of P.R.O.C., emphasized the importance to every oilman of the Institute's program, followed by Robert E. Garret, API Mid-Atlantic District Chairman. Joseph H. Mader, field representative, Fred Eldean Organization, New York 19, N. Y., gave a complete presentation of the oil industry public relations program and emphasized the part of each individual and each oil company can and should play to make the program a success.

The State Chairman and two committee men from Virginia attended the gathering.

Oregon Association Conducts Consumer Advertising Campaign

OREGON FUEL MERCHANTS ASSOCIATION, Portland 4, Ore., sponsored the first of a series of advertisements in the August 17 *Sunday's Journal*. Lin Bowman, chairman, Oil Burner Committee, and other committee members formulated the campaign, which is designed to build acceptance and prestige for oil and burner members of the group.

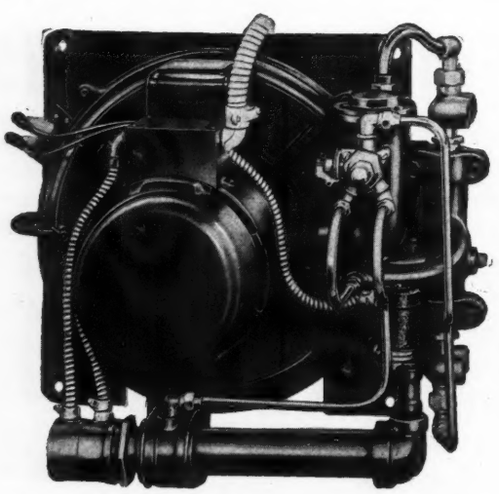
On August 7 the Oil Committee held a luncheon and stressed the importance of display OHI decalcomanias on office windows and trucks. An additional supply has been ordered to permit all members to make use of this means of promoting Oil Heat Institute's program. Extension of credit also was discussed at the meeting.

New England OHI Schedules Course C Oilburner School

A SCHEDULE, released by Oil Heat Institute of New England, Boston 15, Mass., lists sessions to be held in six cities for Course C, Technicians' Training School for Oilburner Mechanics. The course follows Courses A and B, held the past two years and which were primarily lecture courses. This year the Institute has secured specially built equipment on which students will work to solve service problems. Worcester, Springfield, New Haven, Hartford and Providence will be the scene of sessions, with eleven scheduled for each city. First class was held in Worcester on September 8, and the last session will take place in Providence on December 12.

Classes are limited to twenty-five stu-

This famous **30 AVH Burner** *built by Johnson*



Johnson's time-tested 30 AVH Burner uses preheated heavy oils that keep fuel bills low. It is built in six sizes and capacities to meet virtually any heavy-duty heating need.

is heating... **Hotels Hospitals Skyscrapers Big Buildings** *all over the world!*

PROBABLY more big buildings have been heated for more years by Johnson's 30 AVH Burners than any other single oil burner model ever built.

For all around efficiency and fuel economy the 30 AVH is unsurpassed. Heating Engineers the world over have learned from happy experience that they can depend on 30 AVH performance. We recommend it for your consideration on any heavy-duty job.

If the 30 AVH doesn't fit your specifications, there are other fine Johnson Burners that will. For the Johnson line-up is a *complete* line-up; small "packaged" domestic burners . . . water heaters of every size . . . air, steam and hot water units . . . and a wide assortment of heavy-duty burners. Tell us what you need. We'll be glad to help you.

There's a Johnson Oil Burner for every heating need

Johnson Oil Burners

S. T. JOHNSON CO.
940 Arlington Ave., Oakland 8, Calif.
401 No. Broad St., Philadelphia 8, Pa.

He saves engineering time—

D. R. PERCIVAL, *Electrical Engineer, Machine Division, Norton Company*

"I think a lot of us designers will save time in the long run if we'll decide, at the start of a job, to use standard motors." Thus speaks D. R. Percival, Electrical Engineer, Machine Division, Norton Company. "We'll eliminate the exhaustive engineering tests we used to make on fractionals. With horsepower, service factor, breakdown torque, and starting current all rated on a clear-cut, uniform basis we'll know *in advance* whether the motor will handle the job."

He cuts production corners—

BEN B. BRESLOW, *President, Utility Appliance Corp.*

"The big thing about the new small-power motor standardization plan, to me, is the promise it holds of increasing the *availability* of all makes of motors," says Ben B. Breslow, President, Utility Appliance Corp. "We'll stand a better chance of getting 'off-the-shelf' delivery of motors if they are a big production item, instead of a special. We cut a few production corners, too, by using standards. We eliminate special jigs and fixtures, and the need for making universal mounting bases and adapter plates. We can 'standardize' more of our own assembly methods."

More for your money with STANDARD *fractional-horsepower* MOTORS

GENERAL ELECTRIC offers you three advantages as a source of fractional-hp motors. First, we give you the widest variety of standard general-purpose and definite-purpose motors to choose from—some 1600 in all. Second, General Electric motor-exchange and repair-service plans have been developed on a country-wide scale to give prompt, low cost motor repair or replacement service to your customers. Finally, in all G-E motors you get the quality extras which standards can't cover. You get the benefit of the newest developments in bearing design, insulation, and winding techniques. You get the best possible protection against electrical breakdown and mechanical wear and tear.

THE NEW MOTOR AND INDUSTRY STANDARDS for defining motor rating and performance and the new dimension standards for small-power general-purpose and definite-purpose* motors were arrived at after study of thousands of motor orders and months of co-operative work by industry associations and the National Electrical Manufacturers' Association. And—these standards will be modified as design trends change, to keep in step with user needs. Standardization is not static!

FOR EXAMPLE, the General Electric machine tool motor is engineered specifically for rough industrial service. Totally enclosed, these motors have a rigid base and ball bearings which fit them for jobs where thrust is encountered. Firmly anchored windings stand up under frequent start-stop service, plugging, and momentary overloads. Descriptive bulletins on this and other standard G-E motors listed below are available on request. *Apparatus Department, General Electric Co., Schenectady 5, N. Y.*

Unit-bearing Fan
Washing Machine
Oil Burner
Machine Tool
Gas Pump
Hermetic Refrigeration
Belted Fan
Coal Stoker
Jet Pump
Shaft-mounted Fan
Sump Pump
General Purpose

** Definite-purpose motors are standard motors specifically designed for jobs where general-purpose motors (built for road application) are not ideally suited.*

GENERAL ELECTRIC

700-82C

fuel oil & oil heat

dents each and, with an afternoon and evening class scheduled for each city—except Providence where two night classes will be held—the maximum students for the course in each city will be fifty. First choice went to students registering before the first session in each city and where registration exceeded fifty, proportional reductions were made. Afternoon sessions run from 3:30 to 6:00 P.M.; evenings from 7:30 to 10:00 P.M. Providence classes are scheduled from 7:00 to 9:30 and from 9:30 to midnight.

Each session is devoted to one subject, in this order: Penn controls, Sundstrand pumps; nozzles-combustion; M-H controls; Tuthill pumps; small motors; Mercoid controls; Webster pumps; Perfex controls; combustion chambers, and, finally, an examination based upon home work questions.

Heating and Piping Contractors Plan Fall Meeting in Washington

FALL MEETING of the Secretaries' Conference of the Heating, Piping and Air Conditioning Contractors National Association will be held at the Hotel Statler, Washington, D. C., October 2 and 3, 1947. The Secretaries' Conference consists of managers of state and local associations affiliated with the national group and meets twice a year. The Board of Directors of the national group will meet in Washington on October 3 and 4, and will hold a joint meeting with the secretaries.

More Appointments Made To Committees in API Program

APPOINTMENT of six area chairmen to head committees conducting the petroleum industry's public relations program in West Virginia has been announced. F. H. Allen, Pure Oil Co., is chairman for the Parkersburg area; R. H. Bowman, Gulf Oil distributor for Rainelle area; F. M. Hoferer, Standard Oil Co. of N. J. for Charleston area; J. E. Matthews, Socony-Vacuum distributor for Clarksburg area; Dan Shank, Huntington Oil Co., for the Huntington area and C. B. Kelley, Elk Refining Co., for the Logan area.

Four counties in northern West Virginia have been placed under the jurisdiction of the western Pennsylvania operational committee, Gilbert Flury, Standard Oil Co. of Pennsylvania, Pittsburgh, vice chairman. Three counties in the southern portion have been included with five counties of Virginia in a new area.

Donald R. Waugh has been named field representative for the program in New England, and will work with the District Committee there, headed by R. R. Potts, Socony-Vacuum, Boston.

Two members were added to the Public Relations Operating Committee, API, during a two day meeting of the committee in New York on August 6: M. S. Hauser, Ohio Oil Co., Findlay, Ohio, and Jay S. Smith, Standard Oil Co. of California, San Francisco.

OHI Directors Meeting Moved Back to October 7

DUE TO AN INABILITY to secure hotel accommodations on October 14 in Chicago, R. S. Bohn, president, Oil-Heat Institute of America, Inc., and chairman of the

The BURNRITE Anti-Syphon Valve

GREATLY IMPROVES FUEL PUMP PERFORMANCE

- PREVENTS Back Syphonage
- PROMOTES Top Efficiency
- RELIEVES Strain on Fuel Pump

A distinct asset to every oil burner installation, the BURNRITE Anti-Syphon VALVE is today's most effective means by which you can assure your customer of complete freedom from back-syphonage! It eliminates undue wear and strain on fuel pump and motor and will not chatter in operation. A rust-proof and a low-vacuum operating unit, the BURNRITE VALVE requires no attention. Because it assures trouble-free performance, every BURNRITE VALVE installation reduces service calls to a minimum.

Specify BURNRITE VALVES on every oil burner job . . . get in touch with your jobber or write direct.

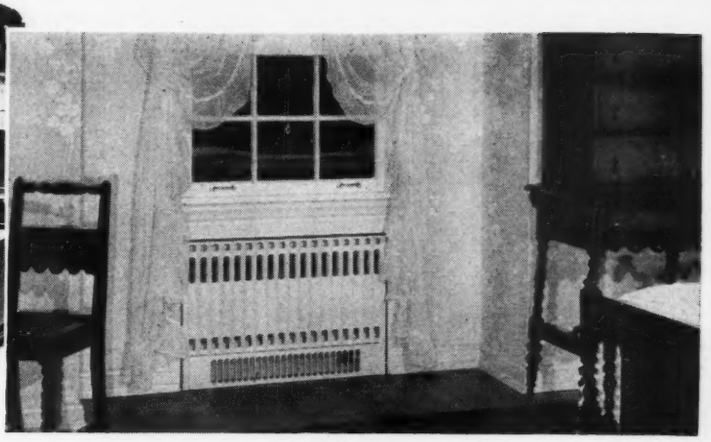
APPROVED BY NATIONAL BOARD OF FIRE UNDERWRITERS — APPROVED BY NEW YORK BOARD OF STANDARDS AND APPEALS.

BURN RITE

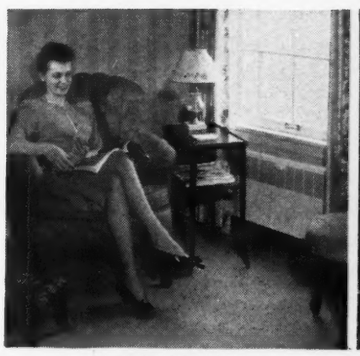
BURNRITE VALVE MFG. CORP.

177 W. FIRST STREET DEPT. A MT. VERNON, NEW YORK

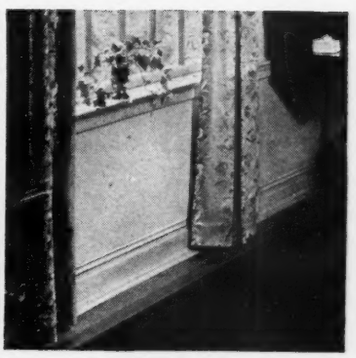
for any kind of Radiation



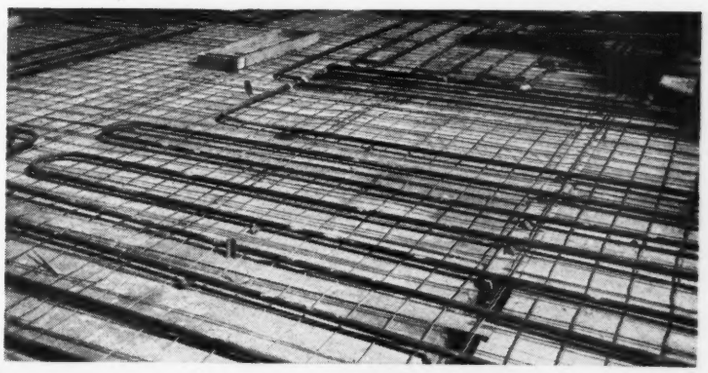
RADIATORS



CONVECTORS



BASEBOARDS



RADIANT PANELS

For luxurious winter comfort, there's nothing like the sunny warmth of radiant heat! And whether it is distributed by radiators, baseboards, convectors or radiant panels, a B & G *Hydro-Flo* Heating System assures you of its maximum benefits.

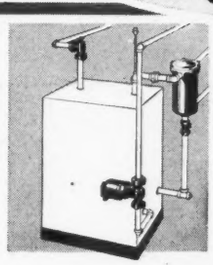
B & G *Hydro-Flo* Heating takes full advantage of the basic superiority of *forced hot water* as a heating medium. It establishes ideal comfort conditions because it measures out heat in the exact amounts required by the weather. As the outdoor temperature varies, the average temperature of the water in the system *is varied also,* providing exact compensation for changes in heat loss.

The result of this *variable* water temperature is a *constant* room temperature, regardless of weather changes. Operating economy is obvious since fuel is burned only in amounts sufficient to satisfy the heat demand.

Don't forget year 'round hot water

With a B & G *Hydro-Flo* Heating System installed, the same boiler that heats the house also heats water for kitchen, laundry and bath. The supply is virtually limitless . . . low in cost . . . furnished 24 hours a day, all year 'round.

B & G *Hydro-Flo* Heating Equipment can be installed on any hot water heating boiler. It is known everywhere for dependable operation.



B & G

*Hydro-Flo** HEATING

BELL & GOSSETT COMPANY

Dept. AE-7, Morton Grove, Ill.

*REG. U. S. PAT. OFF.

fueloil c oil heat

Board of Directors, has announced that the date for the Directors' meeting has been moved back one week to October 7.

Suitable reservations of hotel space in the Palmer House have been made for arrivals on October 6. The meeting will convene at 10:00 A.M. the following day.

Complete First Six Months Of Indoor Comfort Conferences

IN JUNE, the National Warm Air Heating and Air Conditioning Association, Cleveland 14, Ohio, completed the first six months of operation of its Indoor Comfort Conferences, heating engineering schools. Twenty-seven conferences were held, with a total attendance of approximately 2700. Conducted by Guy A. Voorhees, Application Engineering Director of the Association, schools consisterd of a two-day course of instruction, based on the codes and manuals developed by the Association. Each man attending is furnished a complete set of manuals and is charged a nominal tuition fee. The Association defrays the balance of the expense.

Plans to expand the conferences in 1948 envision three day schools, with about half a day devoted to instruction of beginners in heating fundamentals. Problems using the new Manual #9 for installations of 120,000 Btu/hr and over and Manual #7-A for warm air ceiling panel installations will be part of the course. Schedules, dates and places are expected to be announced later.

Bender Paper Presented at Smoke Prevention Meeting

MORE THAN 93% of all the products manufactured by the petroleum refining industry consist of fuels of various kinds that can be burned smokelessly and inoffensively as long as the reaction between their hydrocarbons and oxygen of the air is complete, R. J. Bender, consulting engineer for Sinclair Refining Co., told the Toronto meeting of the Smoke Prevention Association, July 7 to 10. Mr. Bender outlined four stages of combustion that must be performed consecutively in order to keep from offending the eyes and noses of the public.

1. A transformation of the liquid fuel into finely divided, vapor-like mist, favorable to its intimate subsequent mixture with air. This stage, applicable to liquid fuels only, can be reached by "atomization" (pressure release) or by "vaporization" (application of heat or vacuum)

2. A thorough mixing of the fuel hydrocarbons with air, the most common source of oxygen necessary for combustion.

3. A rise in temperature bringing the hydrocarbon and oxygen mixture up to the point at which ignition will occur.

4. A chemical reaction, which is combustion properly speaking, during which oxygen combines with the carbon and hydrogen of the hydrocarbons, to produce carbon dioxide and water vapor. This is the stage in which heat is generated.

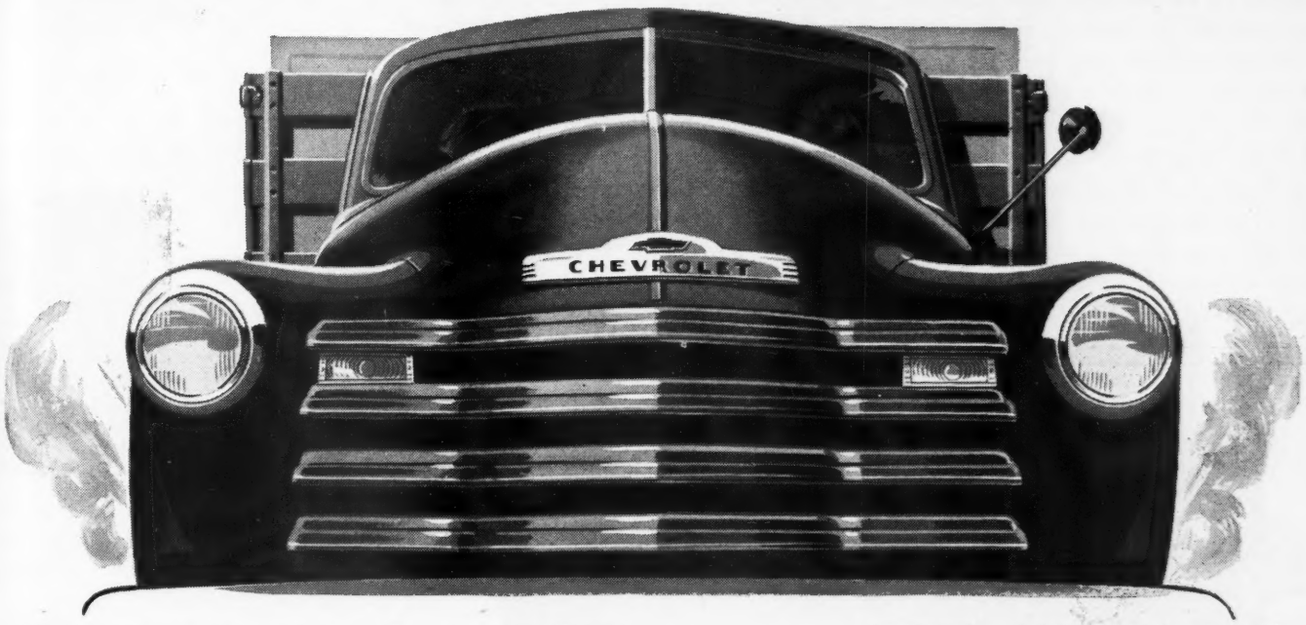
In his paper, Mr. Bender traced the responsibility of the refiner, the designer and the operator in each of the stages, whether combustion takes place in an internal combustion engine, a furnace or a jet engine.

OHI Of New England Protests Massachusetts Fueloil Rules

ON JUNE 3, 1947, the Board of Fire Prevention Regulations, Department of Public Safety, Boston, Mass., submitted to the Commissioner of Public Safety a new set of rules and regulations for the keeping,

A portable, quick, handtight connection between gun and fill pipe..
only $11.50 COMPLETE
(SET of THREE SIZES)
In Carrying Case
F.O.B. CAMBRIDGE
FASFILL is a loose-tight connection, combining advantages of both. Adaptable to all fill lines. Sealing diaphragm permits faster filling and stepped-up pumping speed. FASFILL eliminates blowbacks, fill drip, and need for making up tightly-threaded connections. A complete connecting unit in itself — provides for 2", 1½", and 1¼" Male and Female connections. FASFILL speeds fuel oil delivery — eliminates blowbacks — saves time and labor.
SCULLY SIGNAL COMPANY
88 FIRST ST., CAMBRIDGE 41, MASS.
SCULLY FASFILL PAT.PEND
FASFILL
T.M. REG. U.S. PAT. OFF.

With men who know trucks—THEY CARRY THE WEIGHT!



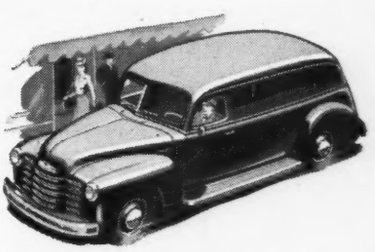
CHEVROLET *Advance-Design* TRUCKS

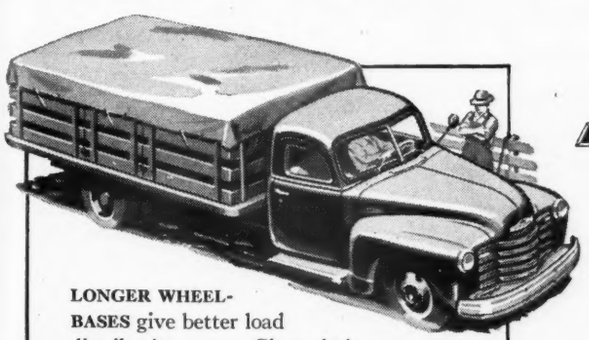
With experienced truck users, Chevrolet's new line of ADVANCE-DESIGN trucks definitely *carries the weight*—by preference and pounds! They're new . . . they're ahead of the times with *Advance Design* and the cab that "breathes"—that almost literally "inhales" fresh air and "exhales" used air.* Here's profit-power and performance, plus new features and innovations well worth seeing—well worth owning!

THE CAB THAT "BREATHES"—fresh air is *drawn in* from the outside—heated in cold weather—and used air is *forced out!*

The cab is **FLEXI-MOUNTED**—cushioned on rubber against road shocks, torsion and vibration! . . . **DRIVER'S COMPARTMENT** is wider, with more leg room. The seats are fully adjustable, bigger and more comfortable. Wider, deeper **WINDSHIELD** and **WINDOWS** increase visibility by 22%!

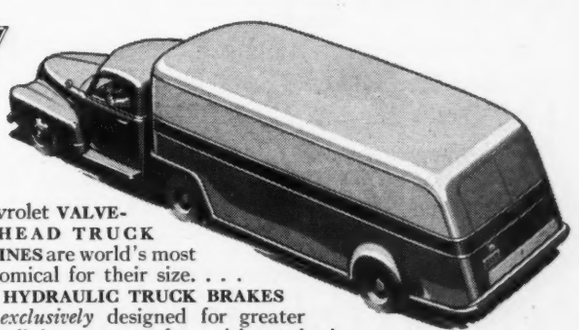
Panels and pick-ups have **INCREASED LOAD SPACE**—stake and high rack bodies **MORE EFFICIENT LOADING.** . . . New, stronger, sturdier **FRAMES** are designed to carry greater loads greater distances for a longer time!





LONGER WHEEL-BASES give better load distribution. . . . Chevrolet's famous **FULL-FLOATING HYPOID REAR AXLES** are geared for the load!

CHEVROLET



Chevrolet **VALVE-IN-HEAD TRUCK ENGINES** are world's most economical for their size. . . . The **HYDRAULIC TRUCK BRAKES** are *exclusively* designed for greater brake-lining contact—for positive action!

**Fresh-air heating and ventilating system optional at extra cost.*

CHOOSE CHEVROLET TRUCKS FOR TRANSPORTATION UNLIMITED!

CHEVROLET MOTOR DIVISION, *General Motors Corporation*, DETROIT 2, MICHIGAN

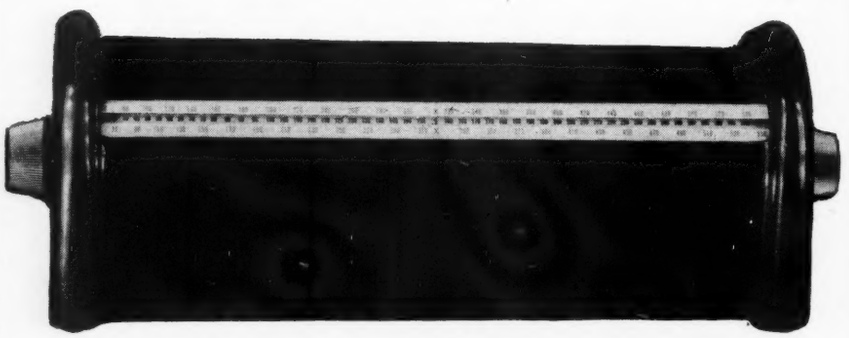
fuel oil & oil heat

storage and use of fueloil. When the Commissioner transmitted the rules to the Secretary of the Commonwealth, they became law, with effective date of June 3.

The rules require any person, firm or corporation to obtain from the Fire Marshal, a Certificate of Competency before a burner installation or alteration can be made.Individual employees of a company are not required to have the Certificate, and once it is issued it remains in effect until cancelled for cause. All forms and papers pertaining to the installation or alteration must carry the certificate number.

For each installation or alteration, the dealer must next file with the head of the Fire Department an application for permit to install and, when the work is finished, a Certificate of Completion. The Fire Department finally issues the dealer a permit for fueloil storage and this permit is turned over to the owner of the oilburner.

A public hearing on the Institute's appeal to protest ten rules and insert an additional rule will be held October 6, 1947 at the State Fire Marshal's Office, Boston.



SCHEDULING AUTOMATIC FUELOIL DELIVERIES SIMPLIFIED WITH THE----

ROLL-RULE DEGREE DAY CALCULATOR

The Roll-Rule accurately computes "K" factors and schedules Degree Day Deliveries in a fraction of the time required by any other method.

It has been designed especially to meet *YOUR* requirements and to save you time during your peak load season.

NO EXPERIENCED OPERATOR REQUIRED—
NO MECHANICAL PARTS TO FAIL—
NO EXPENSIVE INSTALLATION INVOLVED—
SITS ON YOUR DESK WITHIN EASY REACH—
PORTABLE—(TOTAL WEIGHT 7 LBS.)

System Can be Self Taught in a few minutes from printed instructions.

Save money with the time saving, effortless operation of the ROLL-RULE DEGREE DAY CALCULATOR.

Can you afford to continue your present method of calculating when the ROLL-RULE costs only—$30.00?

MANUFACTURED BY —

RUE MANUFACTURING COMPANY
1435 MELON STREET
PHILADELPHIA, 30, PA.

Lester O. Stearns

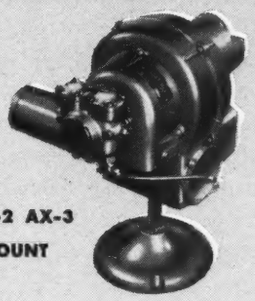
LESTER O. STEARNS, Residential Division sales manager, York-Shipley, Inc., York, Pa., died on August 1 of a heart attack while at work. He was 53 years old. Mr. Stearns joined York in April 1947, after operating his own business, Stearns Supply Co., Cleveland since 1943. Previously he had been sales manager, and later vice president and director, Columbia Radiator Co. He served with both the French and American armies, 1917-19 and then joined American Radiator Co., Buffalo, N. Y., and with the exception of two years of selling with Continental Heater Corp., 1923-25, was a key man in American Radiator sales until 1939 in many of the firm's outlets in various cities.

Earl L. Bedard has assumed the duties of chief engineer, Aldrich Co., Wyoming, Ill. Formerly project co-ordination engineer, Minneapolis-Honeywell Regulator Co., Mr. Bedard has been engaged in the design and manufacture of oilburners since 1927, when he was associated with Progressive Machinery Co., Minneapolis. He later operated Oil Electric Co., Minneapolis, designing and manufacturing this burner until the beginning of the war. He joined Honeywell in 1940 and was designated chief instructor to teach Army Air Force technicians the operation and maintenance of M.H. automatic pilots on Army bombers.

Carl J. Dinic is announced as manager, commercial research, Rheem Mfg. Co., and will make his headquarters in the New York office. His previous affiliations include positions with American Locomotive Co., United States Steel Corp. of Delaware and Eastern Gas & Fuel Associates.

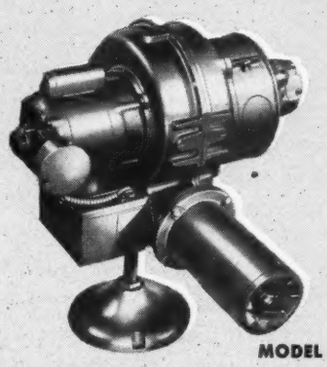
OIL BURNERS

.75 to 19 G. P. H. with 3 Models



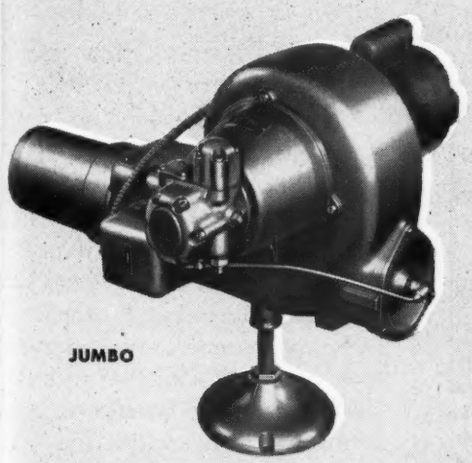
MODELS
AX-1 AX-2 AX-3
FLOOR MOUNT

MODEL AX: Covers 90% of conversion needs. Low-cost interchangeable gun assemblies and air cones enable quick change through 3 firing ranges: AX-1 .75 to 1.35 g.p.h., AX-2 1.35 to 2 g.p.h., and AX-3 2 to 5 g.p.h. Various lengths of draft tubes available. You can meet a wide range of customer's requirements with a minimum stock.



MODEL BX

MODEL BX: A larger burner covering a firing range from 4 to 9 g.p.h.



JUMBO

JUMBO: This is a heavy burner for larger buildings with a ¾ H.P. motor, and duplex nozzles and ignition. Capacity: 5 to 19 g.p.h.

All models are complete with controls for warm air, steam, or hot water.

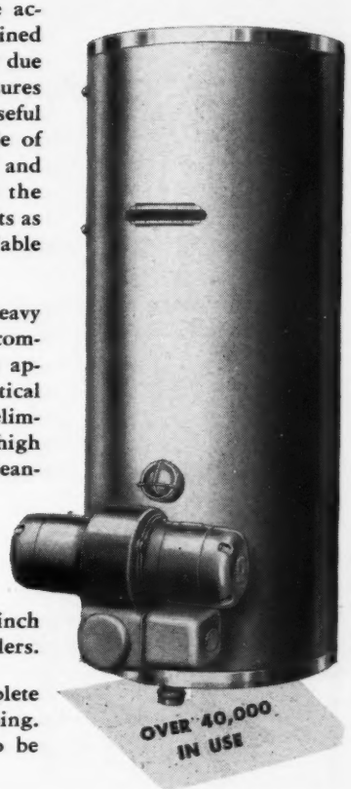
Ask your Jobber about Aldrich Products

ALDRICH HEAT-PAK PRODUCTS

BOILER-BURNER UNITS

HOT WATER HEATING • STEAM HEATING • HOT WATER SUPPLY
6 SIZES—118,000 to 808,000 BTU RATINGS

QUALITY CONSTRUCTION: Wide acceptance in the heating trade has been gained by Aldrich Heat-Pak Products, largely due to high quality construction that insures peak performance throughout a long useful life. Skillfully engineered parts, made of good materials, accurately machined and carefully assembled — these mark the Aldrich Burners and Boiler-Burner Units as well-made products having uniform, reliable performance.



Aldrich Boiler-Burner Units combine heavy welded construction with efficiency, compactness, accessibility, and handsome appearance — all at moderate cost. Vertical fire-tube design with inserted spirals eliminates soot deposits and maintains high efficiency over long periods without cleaning. Combustion chamber is surrounded by water leg and effective insulation to make for efficient, low-cost summer-winter operation.

HOT WATER COIL: 60 feet of ¾-inch copper tubing; optional on heating boilers.

EASY TO INSTALL: Units come complete with burner and controls ready for piping. No sheet metal work or insulation to be added.

Write today for complete data and price lists

ALDRICH COMPANY

WORLD'S LARGEST BUILDERS OF AUTOMATIC OIL BURNERS

OIL BURNERS • BOILER-BURNERS FOR HEATING AND DOMESTIC WATER SUPPLY

103 EAST WILLIAMS ST., WYOMING, ILLINOIS

Readers' Forum

STUART SUPPLY CO.
Des Moines 9, Iowa

Editor:

We think it important that burner sales be kept up and if dealers are urged to bear down hard on the replacement business they cannot only sell burners but save fuel.

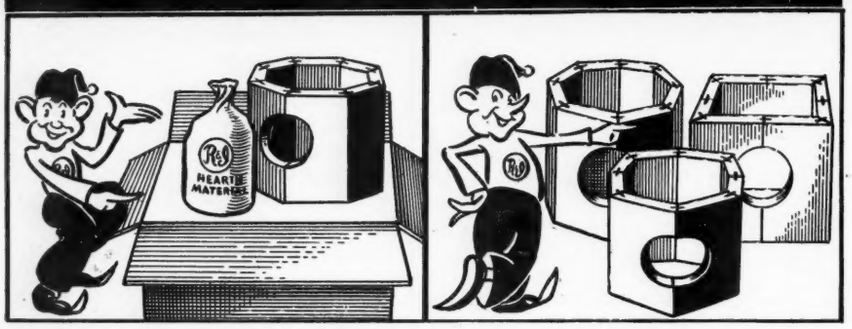
Some dealers sell insulation and we believe that it would help if all of their jobs were insulated as after a time an oilheated home would come to be thought of as one economically heated. Many dealers can sell insulation and might augment their income by selling it.

As to how the public could be educated, we believe that is a job for an advertising or public relations man. Let us reiterate, we are now suffering for the bad mistake of ever having started free service. We ourselves fought it from the first. If you waste fuel, food or electricity, you eventually have to pay for it.

There is no greater misnomer than "free service." The house owner might be taught to see that his burner and heating plant is looked after each season. On free service, we would venture to say it isn't. In many a home we have found filters that haven't been changed in two to three years. Didn't even know they had them. Of course, we are not in the service end of the business any more, but we do think that the dealer and house owner can do a lot to help save fuel and that is, see that plants are properly serviced.

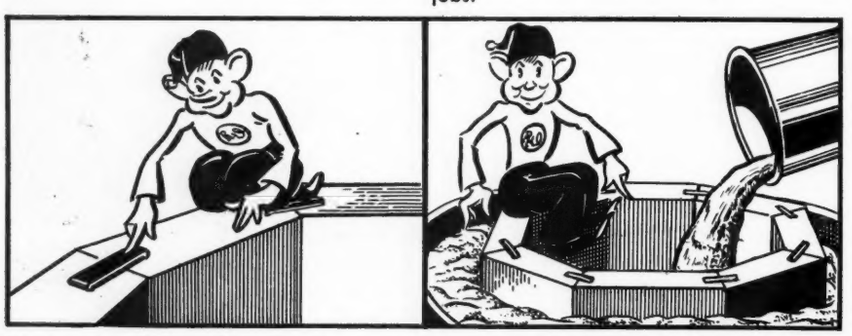
W. W. STUART

See How Easily and Quickly It Can Be Installed



Oh, joy! Here's everything needed to install in one carton.

It can be installed round, pear shaped or rectangular and fits any make or style burner, 1 to 1.65 gals. oil per hour. Extension pieces can be supplied for larger jobs.



Simply lock the sections together with bonding clips, without any cutting or fitting and without any cement.

Now pour in R & I Hearth material for floor and trowel it smooth . . . and fill around the outside with R & I Pakinsul granulated wool. That's all!

Get R & I Combustion Chambers from your supply house.
Write us for Bulletin OB-98.

REFRACTORY & INSULATION CORPORATION
122 Wall Street New York 5, N. Y.
Chicago 4, Ill. Newark 2, N. J. Philadelphia 3, Pa.

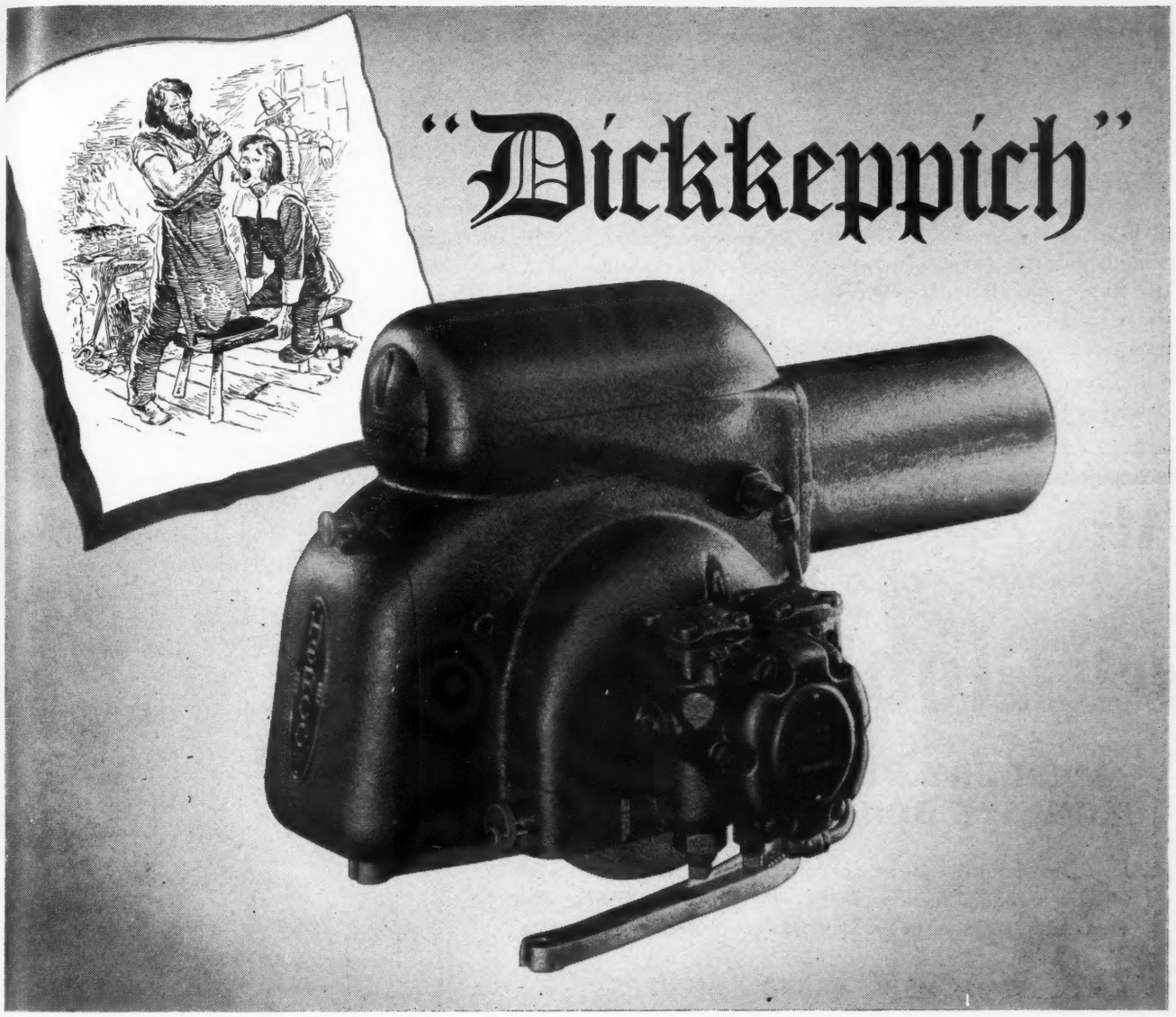
R&I COMBUSTION CHAMBER

James C. Martell has joined Coastal Oil Co., Newark, N. J., as assistant to the president. His experience in the petroleum business since 1927 encompasses both wholesale and retail marketing and until 1943 he functioned as superintendent of operations for Quincy Oil Co., Quincy, Mass. In 1943 he was commissioned in the U. S. Navy, concerned with movement of petroleum products to pools and depots and development of additional oil storage, terminal facilities and programming requirements for all theaters of war. When ordered to inactive duty in December, 1946 he remained civilian chief, Petroleum Requirements Section, Fuel Div., Washington, D. C.

Howard W. Page has been appointed executive assistant to Eugene Holman, president, Standard Oil Co. (N. J.), succeeding Frank M. Surface, retired. *Jerry A. Cogan* succeeds Mr. Page as head of the Coordination and Economics Dept. Both new appointees were on leave of absence from 1942 until 1945 with Petroleum Industry War Council and then with Petroleum Administration for War.

Morris F. Jacobs has been named Wisconsin representative for Illinois Testing Laboratories, Inc., Chicago, Ill. He will represent the complete line of Alnor instruments.

O. T. Clarke has been named dealer representative in the southeastern territory for Hammel-Dahl Co., Providence, R. I., manufacturers of industrial automatic control equipment.



"Dickkeppich" is the Pennsylvania Dutch word for "stubborn." We feel this amply describes the attitude of the Herco Oil Burner Corporation when it comes to making good oil burners—we're just downright stubborn enough to refuse to sacrifice quality for quantity production. Since Hans Herr set up a blacksmith shop in 1709, the name Herr has been synonomous with fine workmanship. Proud of its heritage, the Herco Oil Burner Corporation, division of Herr and Company, Inc., will continue this policy. Yes, when Herco can deliver Oil Burners in quantity, you can be assured that they will continue to be the best burners that can be made.

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HERCO OIL BURNER CORPORATION
DIVISION OF HERR & COMPANY, INC.
LANCASTER PENNSYLVANIA

fueloil & oil heat

Everyday Snags

Controls For One-Pipe Steam

Certain radiator vent-valves operate satisfactorily only at pressures up to about two or three pounds. If they close while the radiator pressure is, say, four or five pounds, they cannot re-open later, even if later they should open and permit the escape of air which has been working its way towards the vent-valves.

In a locality where many small homes are heated by skimpy steam plants which work hard on coldest mornings, an oil-burner dealer ran into trouble because the steam pressure controls he installed could not be adjusted to stop the burners at pressures as low as two pounds. With his steam pressure controls set to open their switches at four pounds steam pressure, for example, there was air-binding of the steam plants which had radiator vent-valves not suitable for four pounds pressure. To avoid trouble in the future, this dealer is now using steam pressure controls which can be adjusted to stop the burners at two pounds steam pressure.

Service men often ask, "At what pressure should I usually adjust the steam pressure control of a one-pipe steam plant?"

Here's a good answer: To make certain the pressure will not be excessive for any radiator vent-valve likely to be used, set the steam pressure control for fairly low pressure. You will match the characteristics of most makes of vent-valves if you plan on two pounds maximum steam pressure.

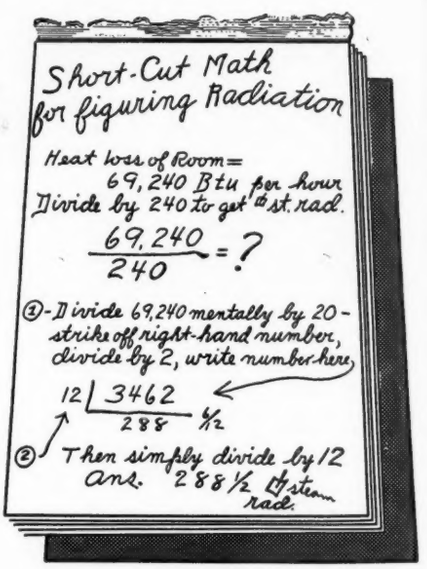
For Figuring Radiation

Working at figuring the steam radiation of large buildings all day, a heating engineer has concocted a method for dividing by 240 in minimum time and with little chance of error.

First, divide the number by 20 mentally. That is divide it by ten by shifting the decimal point one place to the left, then copy down the result divided by two.

Second, simply divide by 12.

In effect you are dividing first by 20 (mentally) and then using simple division


Short-Cut Math
for figuring Radiation
Heat loss of Room=
69,240 Btu per hour
Divide by 240 to get st. rad.
69,240 / 240 = ?
①-Divide 69,240 mentally by 20 -
strike off right-hand number,
divide by 2, write number here
12 | 3462
288 ½
②-Then simply divide by 12
Ans. 288½ sq. steam
rad.

to divide by 12. This saves much time over dividing by 240, according to the heating engineer who thought up the idea. Similar two-step division can be used as well, of course, for planning hot water systems and dividing by 180, 200, or any other number evenly divisible by 20.

Starting Three Burners

When being started and stopped by a steam pressure control which kept them idle only a minute or two under certain load conditions, the three oilburners which fired identical commercial boilers did not

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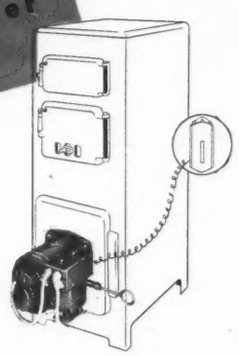

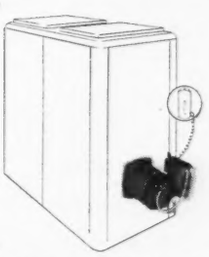

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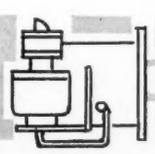

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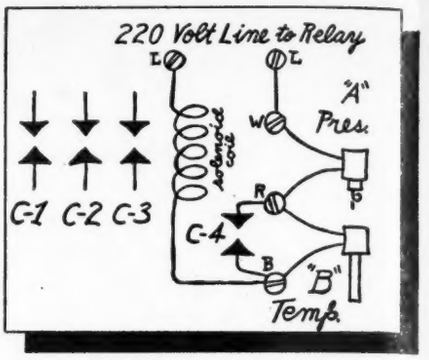
start together. The pressure control would stop the three burners simultaneously, then in about half a minute would try to start them, for example. Each burner would start, however, only when its safety control panel decided it should, and the three burners never received the "Go ahead" signals from their control panels at precisely the same moment, of course. After a short "off" period, one burner would start, then another, then the third. The burner dealer's efforts to tune the control panels so that the three burners would start more nearly simultaneously did not help him with the owner of the burners. The owner became more and more determined that the burners should start and stop together every time. For one thing, said the owner, the water-lines of the three boilers were disturbed by the irregular, unpredictable starting of the three burners.

A relay which has four sets of load-carrying contacts, all normally open, and a 220-volt solenoid coil, was installed to end the trouble. When 220-volt current is given to the solenoid coil, the three burners are started simultaneously by



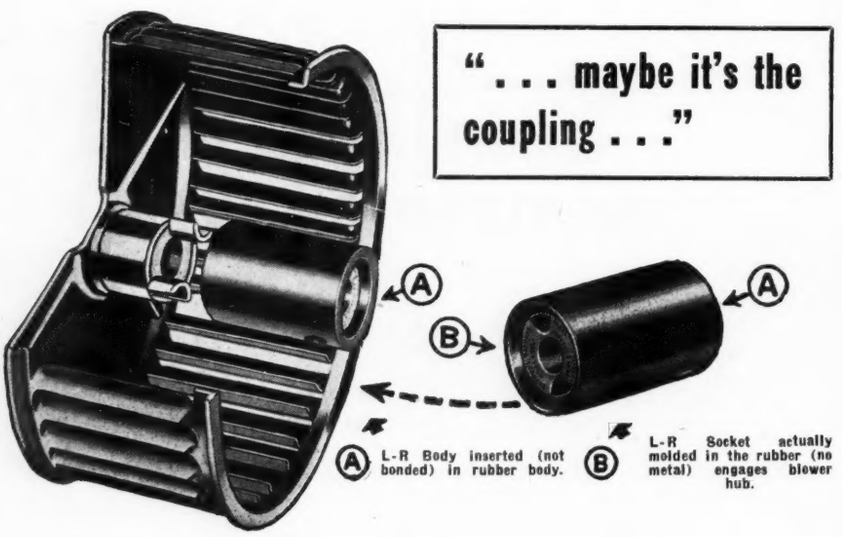
contacts C-1, C-2, and C-3 (see accompanying diagram), which give the "start" signal to the three oil burner safety control panels.

The fourth set of contacts serves as the "lock-in" or "hold-in" contacts of a Series 10 Minneapolis-Honeywell relay. That is why the letters W, R, and B are used. Although this circuit is not low-voltage, these letters correspond to those used for a Minneapolis-Honeywell Series 10 circuit.

Line voltage (220 volts) comes to terminals "L" and "L" of this relay. Steam pressure control "A," mounted on a steam header above the stop-valves of the boilers, starts and stops the three burners. Here's the trick to the entire idea. Temperature control "B," which is an extremely sensitive control also mounted on the steam header, must be in its "on" position to permit this relay to snap in and try to start the three burners. Affected by steam temperature, this control chills, finally snapping "on," a certain length of time after the burners stop. In other words, this control "B" keeps all three burners idle a certain length of time after each "on" period, and by altering the adjustment of this control this time can be set for 15 seconds, one minute, five minutes, etc. Simultaneous starting of the three burners is obtained by setting control "B" for such a low temperature (about 208° actually) that by the time this control snaps to its "on" position, the safety control panels of the three burners are all in the starting condition. It works out this way. Keep the three burners idle for four minutes after each run, and when you give them the "start" signal they will all start together.

Apartment House Controls

Don't make the mistake of locating a room thermostat in a hall, when you install an oilburner to heat an apartment



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Ready now, equipped with Toridheet pressure atomizing burner. In the near future it will also be available equipped with the famous Toridheet Wall Flame Burner.

A perfect package unit includes combination fan and limit control, room thermostat and light-weight insulating refractory combustion chamber.

Some Highlights

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FINISH: HAMMERLOID — easy to clean.

RADIATOR: Gas-tight radiator shell features greater heat transference ability.

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HUMIDIFIER: New float controlled, with Vapo-glass evaporating segments.

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house. The hall has overly great volume for its heat loss, and comparatively little radiation for its volume. Thermal inertia and momentum therefore are high. Compared to typical rooms in an apartment house, a hall chills slowly when the radiators are cold, and heats slowly when the radiators are hot. In addition, the hall temperature may be affected greatly by the opening and closing of an outside door.

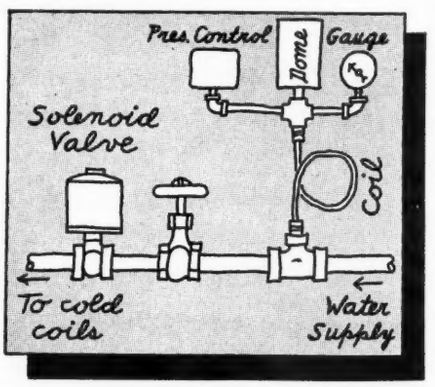
To arrive at thoroughly modern, efficient results, install a modern system of outside temperature control for an apartment house, instead of installing an ordinary room thermostat. Especially where the owner of the building does not occupy one of the apartments in the building, such a system often is needed even for a small, two-family apartment house. The outside temperature control system takes the control of amount of heat out of the hands of the tenants and thus prevents overheating which can increase oil bills by 50%. It gives even heat, greater comfort. All told, it may be absolutely necessary for the successful oilheating of the apartment house.

In an effort to provide halfway decent heat for two-family houses occupied by tenants, one dealer installs a room thermostat of the snap-acting type in the living room of each apartment. Each thermostat has a ship-shape stop device, installed by the dealer in his shop, which eliminates any chance of a tenant's setting the thermostat for higher than 75°. The two thermostats are wired in series with each other, so that when the living room of either apartment is heated to 75°, the heat is turned off.

Cold Water Cut-Out

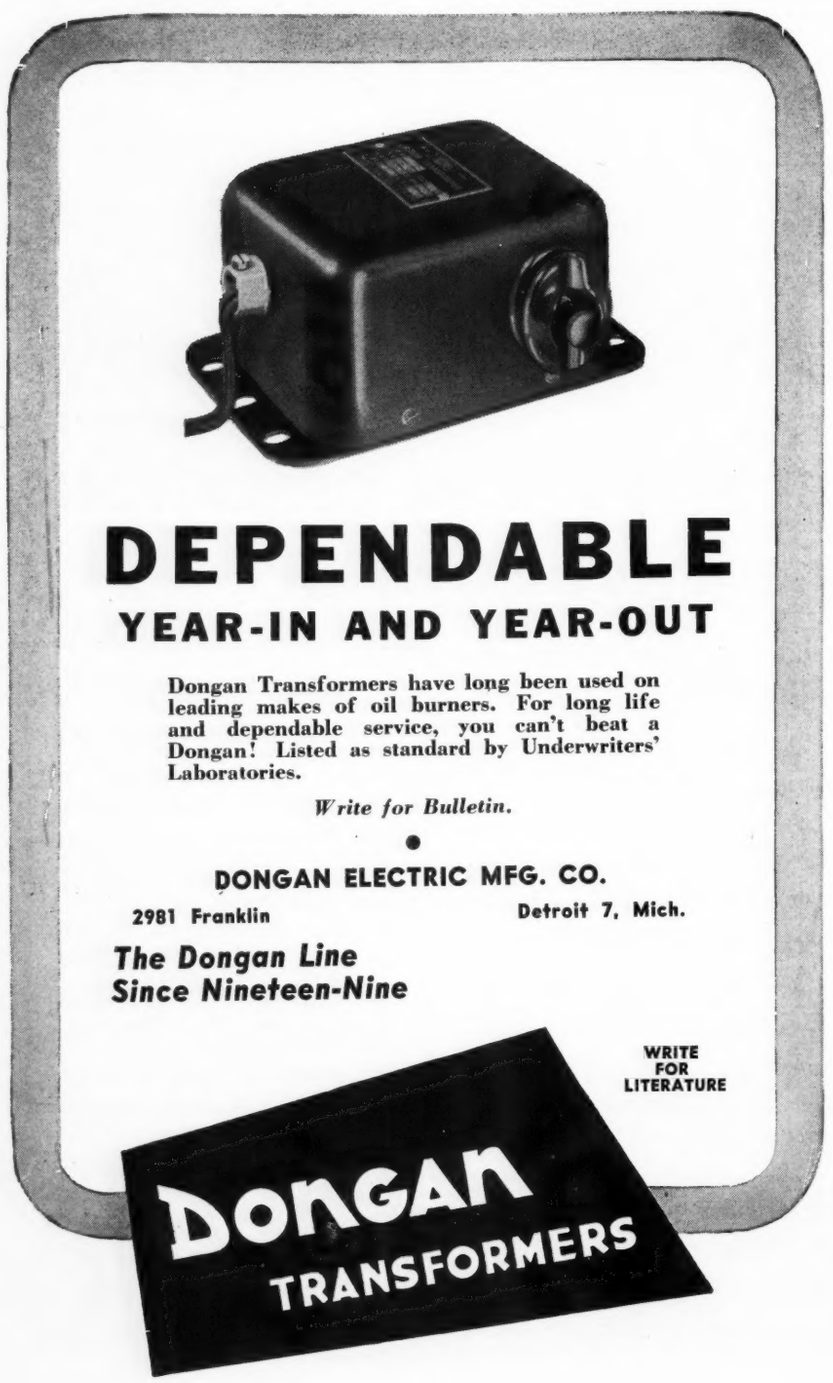
Recently a summer air-conditioning plant was installed on a large estate, where fortunately ample cold water at about 55° was available for air-cooling and dehumidification, since a large deep-well pump layout included two, buried 3,000 gallon cold water tanks. A remote-controlled solenoid water valve is used to turn on and off the flow of cold water to the cold coils of the air-conditioner.

Because of past trouble with the well pump, the designer of the air-conditioning system started worrying about this. Taking several hundred gallons of cold water per hour, the air-conditioning plant was used day and night in summer, and in case of the well-pump's breaking down, this great draw of cold water would rapidly reduce the pressure on the cold water



tanks. Thus, with the air-conditioner in use, a breakdown of the well-pump would be far more likely to leave the estate with low water pressure or with no water. Fire protection was reduced by the installation of the water-consuming air-conditioner, for with the conditioner working there would be little water available to fight any fire which might break out a few hours after the well-pump broke down.

To avoid such disadvantages of using cold water for air-conditioning, the engi-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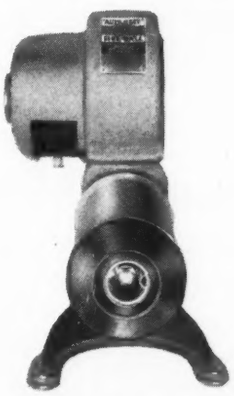
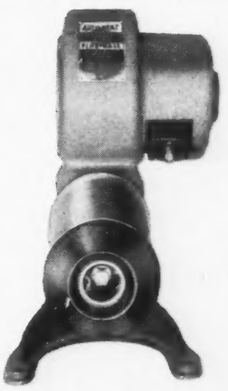


These housings adaptable for either clockwise or counter-clockwise rotations.



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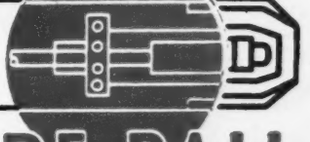
REG TRADE MARK



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AUTO-HEAT CORPORATION

NEW YORK MIDDLETOWN, CONN. U.S.A.

neer first ordered the well-pump put into excellent condition, so that it would be as dependable as any new pump. For example, two pressure controls were used instead of the one used previously, and a good overload protector was installed for the well-pump motor. To top this off, a spare motor, to be kept on hand in good condition, was purchased for the well-pump.

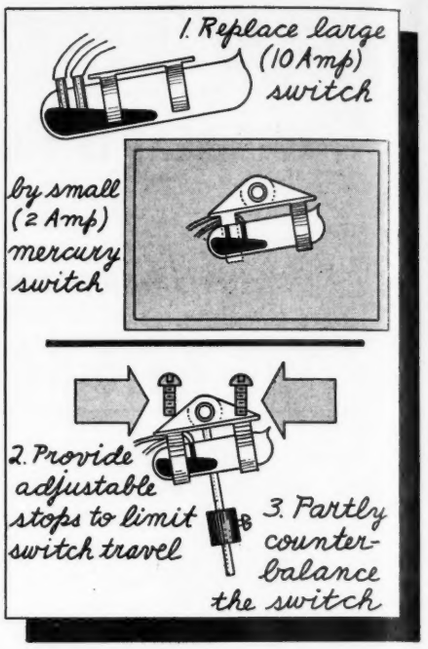
Next, a water pressure control was added to the air-conditioning installation. Located next to a water pressure gauge, this is a reverse-acting control wired in series with the solenoid water valve which feeds the cold coils. If the water pressure ever drops five pounds below the usual minimum, the flow of cold water to the air-conditioner will be stopped by this reverse-acting pressure control. If the well-pump ever breaks down, the air-conditioner will take no cold water after the water pressure drops five pounds below the pressure at which the well-pump starts. A signal light in the equipment room warns that the air-conditioner has stopped air-cooling because of low water pressure.

Water hammer caused by the rapid opening and closing of the solenoid water valve damaged the pressure control and water pressure gauge soon after they were installed. To prevent additional damage after repairs have been made, a coiled-up length of 24" of 1/8" copper tubing was installed in the line to the control and the gauge, and an air dome was installed at the dead end of the copper tubing.

More Sensitive Controls

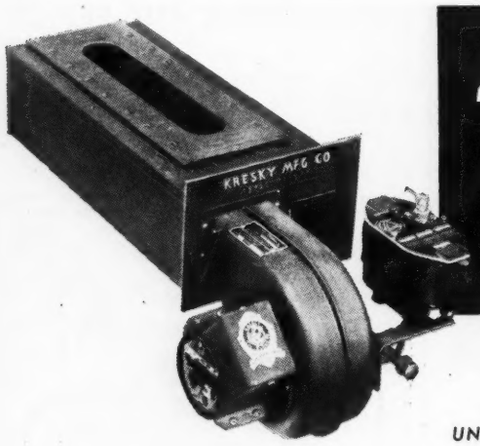
Checking in a laboratory to find out why at times insufficient summer hot water came from a built-in tankless water heater, a boiler design engineer learned that the oilburner was slow to start when the temperature of the boiler water dropped rapidly. Better laboratory performance resulted from taking these steps to increase the sensitivity of the control used to start and stop the burner in summer.

First, the 10 ampere mercury switch in the control was replaced by a two ampere switch. Wired low-voltage, the control did not need the large switch originally in it. The bimetal heat-sensitive element of the control did less work in turning


1. Replace large (10 Amp) switch
by small (2 Amp) mercury switch
2. Provide adjustable stops to limit switch travel
3. Partly counter-balance the switch

on and off the smaller switch, as this switch was shorter and contained less mercury than the larger switch. Consequently changing the switches increased the control's sensitivity.

Second, adjustable stops were provided to limit the travel of the mercury switch. The control had been designed to work



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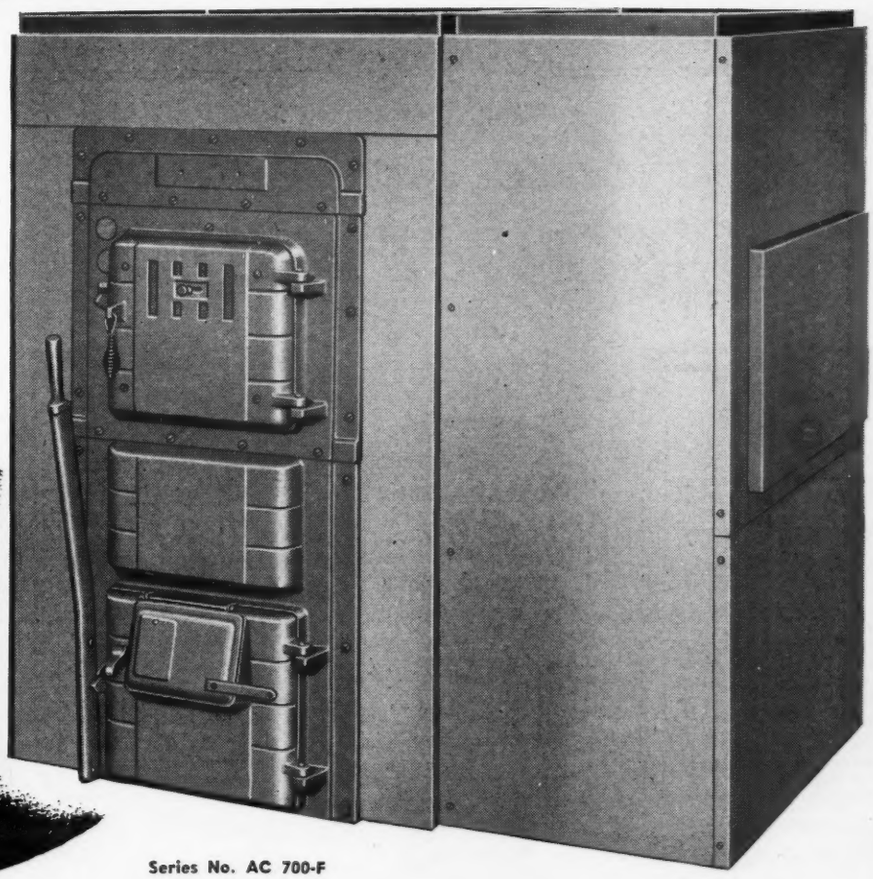

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A new, smart looking air conditioning unit that enhances any modern heating installation.

Compact, steel cabinet, housing both heating and blower compartments, is finished in easy to clean baked enamel. The blower compartment, with silently operating blower of large air handling capacity, rubber mounted motor, and large area filters, can be installed at either side of the cabinet.

The durable long-lived steel heating element is welded leak-proof and gas-tight by the new process of automatic submerged arc welding. Primarily designed to burn coal, the long fire travel and large heating surface make this Luxaire unit well adapted for OIL, GAS or STOKER firing at any time through the installation of conversion equipment.

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properly even when not level. After the switch turned "on," it moved much farther before a stop device prevented its additional movement. Similarly, after turning "off," the switch could move considerably farther. The new stops were adjusted for dependable on and off operation, but reduced the travel of the mercury switch by 40%.

Third, a stiff wire, in the vertical position with the switch clip horizontal, was fastened to the clip and provided with an adjustable counter-weight. The mercury still rolled definitely to the "on" or "off" position, as the weight was too light to tend to keep the switch horizontal. However, the counter-balancing did offset part of the weight of the mercury, and increased the sensitivity of the control.

The design engineer does not believe that these three steps to increase control sensitivity are good for field service work, but he found that during certain tests the improved control gave 16 minute burner "off" periods compared to 35 minute "off" periods obtained earlier, and ended the trouble of the hot water running cool because the burner was slow in starting when the boiler water temperature dropped. Where a tankless coil is barely large enough, he concludes, it helps to use an extra-sensitive boiler temperature control.

Flushing Water Heaters

In many homes which have tank-type indirect water heaters, proper flushing-out of the water heater coils is needed several times a year. Removing two or three pails of "tomato soup" avoids slow reduction of the output of the heater, and in hard-water areas is needed to prevent the coils from plugging solidly.

Along with taking on the responsibility for lubricating his customers' oilburner motors and circulator motors, a certain fueloil retailer has assumed the responsibility for flushing out properly three times a year the tank-type water heater coils of his customers. On each installation he has posted a chart labelled "Water Heater Coil Flushed-Out," with spaces for the dates this chore is performed and the initials of the oil company employee who does the work. Cleaning the coils takes a man five or ten minutes, says the oil company owner. He further points out that everyone who knows anything about indirect water heaters agrees that the coils should be kept clean to avoid high oil bills, insufficient hot water, and need to replace the coils frequently, but that up to now very few of the coils have received regular attention.

"The home owners simply do not clean their water heaters," he says. "Most of them don't even know how to. As the coils must be cleaned to keep up the good reputation of oil-heated hot water, it seems that my men have to clean them."

◈

Edward I. Alter is making his headquarters in Salt Lake City, Utah, acting as sales representative for General Electric air conditioning, heating and refrigeration products in the Northwestern District. Mr. Alter joined G.E. in 1931, a year after his graduation from the University of Utah, and has been in the Field Engineering Division until his present assignment.

Earl Dellon, recently resigned as general sales manager, Paragon Utilities, Inc., Brooklyn, N. Y., is forming his own organization for national sales representation.

Note clean, modern design of boiler jacket. Standard jacket illustrated. Also available, extended model completely enclosing boiler and burner unit.

SPENCER BOILERS "HAVE MET THE TEST" WITH HEATING EXPERTS

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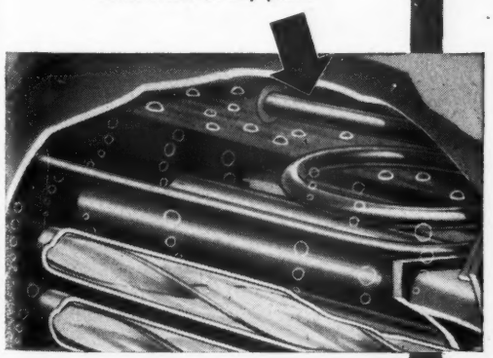
For 57 years, Spencer Boilers have met the test in actual use in homes and buildings everywhere. Heating experts know that they can depend on Spencer's modern design for efficient, economical boiler performance. They have learned to specify Spencer for all heating jobs from a small home to a large building. Architects, builders and heating engineers know, too, that a Spencer Boiler operates efficiently with any type of fuel—coal, gas or oil.

Investigate Spencer! Write or wire today for full information and join experts who have solved their heating problems.

Coils are made of copper and bronze. They deliver rustless hot water because service water passing through coils does not come in contact with boiler water at any point.



PATENTED SPENCER COILS—FOR YEAR 'ROUND HOT WATER— The modern home owner will enjoy Spencer's patented service year 'round water heating method. A special feature of the Spencer design is a cover plate at the top front of the boiler—for quick installation of the copper tube hot water coils. All piping connections are at the rear of the boiler—out of sight. The back of the boiler may be installed close to the wall—out of the way.

SPENCER HEATER

AVCO MANUFACTURING CORPORATION

DIVISION—AVCO MANUFACTURING CORP. • DEPT. FF-6, WILLIAMSPORT, PENNSYLVANIA

fuel oil & oil heat

Reader's Problems

Q. May I enlist your aid in securing accurate information on the need or desirability of using a foot valve on the suction lines from fueloil tanks when the tanks are below the pumps?

My experience is that the oil flows back to the tank during the off cycle where no foot valve is used, causing delay in getting proper pressure at starting.

W.M.O., *New York, N. Y.*

A. Different oilheating experts show considerable difference in opinion when foot valves are discussed.

As far back as 20 years ago, certain experts were opposed to foot valves. A typical argument included these points: 1. Without a strainer to keep it clean, a foot valve may collect dirt, fail to close tightly, and become useless. But a strainer in the bottom of a tank is difficult or impossible to clean. 2. It is too difficult to service a tank-located check valve in event of its sticking closed or failing to close as it should. 3. Alternative methods or devices for holding prime are equally or more effective.

Many who believe in the above arguments never have installed foot valves, and attempt to prove the effectiveness of their alternative arrangements by citing that never have they had loss-of-prime or slow-starting trouble.

On the other hand, certain burner installers have used foot valves for years. They say their job experiences prove they are correct in using foot valves.

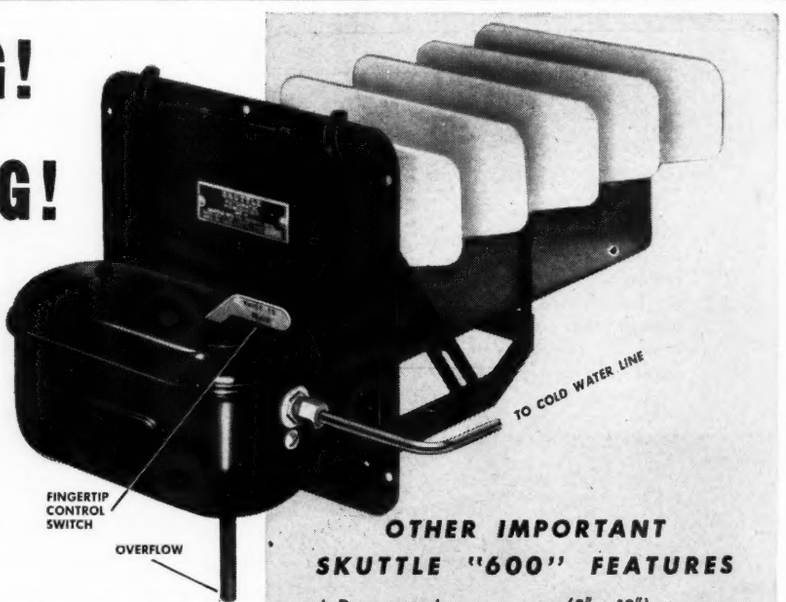
Other experts who use foot valves declare that success depends on using the proper type foot valve, and blame trouble on using the wrong type. Many dealers, for example, are enthusiastic about a certain make and model of foot valve which has a steel ball which seats on a carefully-retained flexible leather washer. They say this gives tight closing even with oils that contain relatively great amounts of sediment.

Undoubtedly some of the alternative arrangements for holding prime have merit and prove effective on actual installations. A few examples of alternative methods of holding prime on an installation where the top of the tank is below the pump on the burner include: 1. Having both the suction line and the return line end within an inch or two of the bottom of the tank, and using oil line check valves located in the basement near the foundation wall or the burner. 2. Using a standpipe arrangement in the return line of the burner, together with a suction line check valve. 3. Using one or two highly effective check valves in the suction line, near the burner. Certain dealers declare that the check valves they use work best when well-protected from dirt and sediment by excellent strainers or filters located in the oil lines ahead of the check valves.

The matter is highly debatable. Excellent results undoubtedly are being obtained by well-informed experts who

Self FLUSHING!
Self CLEANING!

AUTOMATIC CLEANING NOW POSSIBLE IN THE NEW SKUTTLE HUMIDIFIERS



IT'S TRUE! Skuttle Automatic Humidifiers (Series 600*) are completely self-flushing, completely self-cleaning! All you do is raise the fingertip control switch to flushing position and Skuttle's new exclusive vacuum-controlled cleaning system does the rest . . . flushes the entire unit, drains off all water, sludge, mud and mineral deposits, then automatically trips off to allow unit to refill again to valve adjustment level! No hand scraping required, no clean-out panel necessary! Simple, convenient, foolproof!

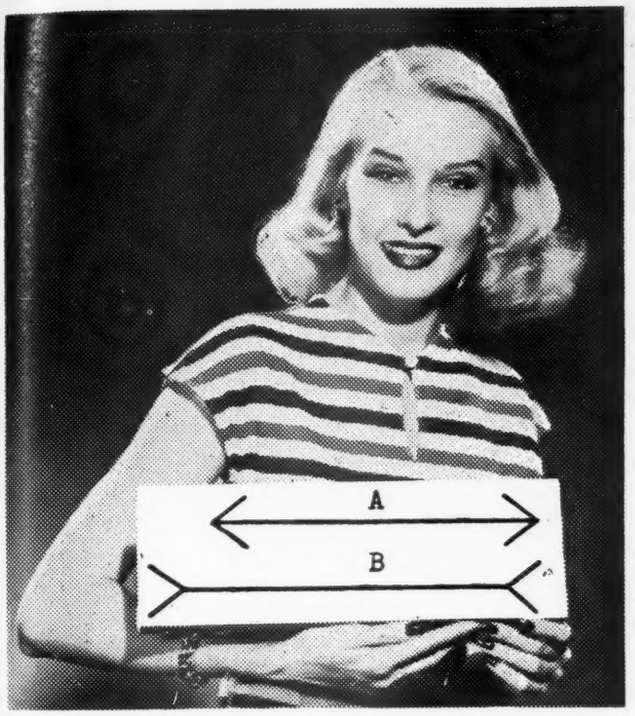
*Patents Pending

OTHER IMPORTANT SKUTTLE "600" FEATURES

★ Drawn seamless copper pan (3" x 12").
★ Replaceable VAPOGLAS* evaporating plates.
★ 5 plates furnished. Evaporating area 316 sq. in.
★ Automatic anti-siphon float control valve.
★ Collar fits sloping or vertical bonnets.

See your local jobber or write today for state listings and the complete Skuttle story!

Skuttle MANUFACTURING CO.
4099 BEAUFAIT, DETROIT 7, MICHIGAN



WHICH

LINE IS LONGER?

"B" looks longer, doesn't it? But it's really the same length as "A"! And it's just as easy, when you are selling oil burners, to be fooled by temporary profits. Now is the time to hold your war-time gains, to protect them against the inroads of competitors. Selling a **BETTER** burner is the only kind of volume that lasts. SILENT KORTH gives you that vital profit protection because it has a proven reputation as a service-free burner.

- **SILENT KORTH** is a one-piece blower housing and draft tube of quarter inch metal. Motor and pump bores are precision machined in one setup—assuring accurate alignment between motor and pump shafts.
- **SILENT KORTH** offers a COMPLETE line in various models and sizes—ranging from .75 to 20 G.P.H.

SILENT KORTH OIL HEAT — OIL BURNERS · AIR CONDITIONING OIL FURNACES · OIL BOILERS — REGISTERED U.S. PATENT OFFICE TRADE-MARK 478 834

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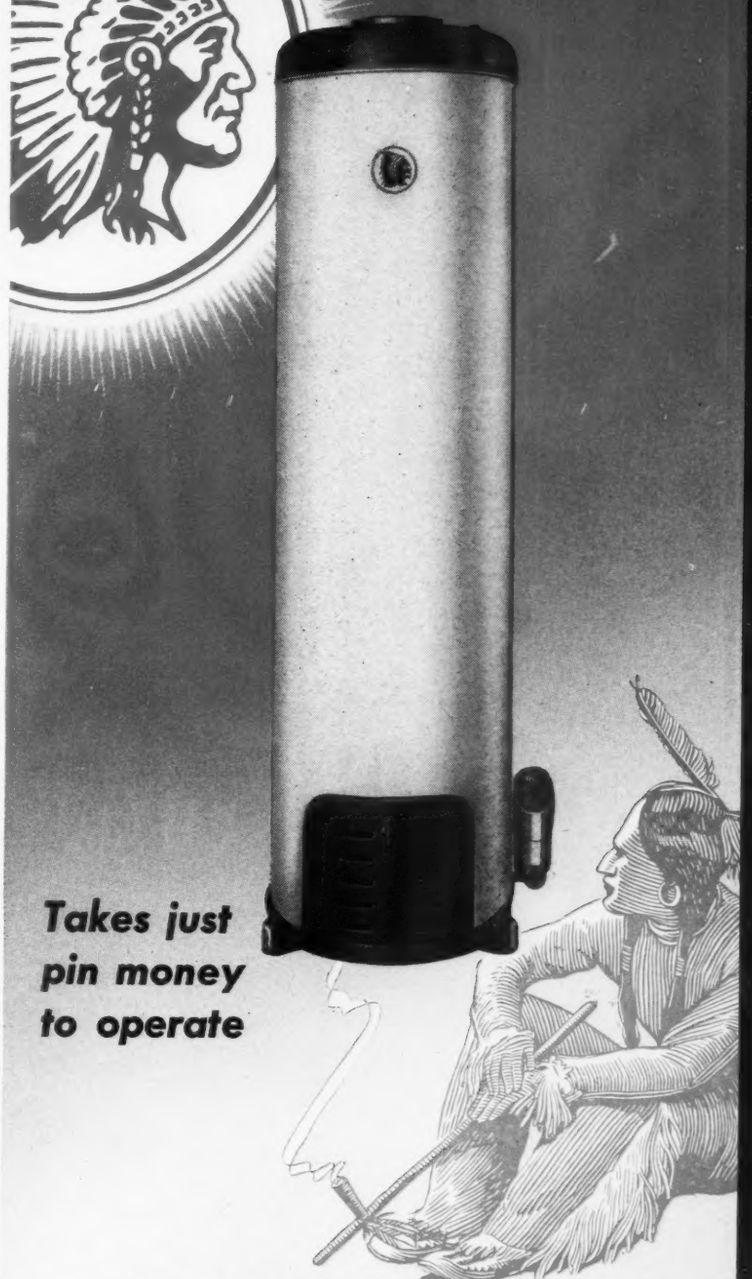
Write today for complete information on prices and our powerful Sales Help program. No obligation!

ECKHART MANUFACTURING CO.
470 First Avenue West
ROSELLE, NEW JERSEY

The CHIEF Oil Fired WATER HEATER



Takes just pin money to operate

With a Chief oil-fired water heater you can actually see the difference in savings and operating costs. For real low cost water heating, the Chief is hard to surpass. Designed for economical operation plus years of trouble-free service, the Chief performs tirelessly and without noise—no moving parts to wear out. Magnesium anode protection can be supplied at a nominal cost. Let the Chief Oil Fired Water Heater show you how to obtain quickly more hot water at a lower cost.

Complete descriptive literature upon request.

MT. PLEASANT HEATER CORP.
710 S. Oak St. • Mt. Pleasant, Mich.

favor the use of foot valves, and by experts who are opposed to using foot valves located in oil tanks and who use the most effective substitutes for foot valves.

Q. In reading your oil burner book, second edition, I have noticed an important factor which I would like to clear up in my mind. You state that a 3-wire thermostat can be used with a 2-wire relay, and a 2-wire low voltage thermostat can be used with a Minneapolis-Honeywell relay. I have about five jobs hooked up in that fashion and I am told I will run into trouble because of the differential. Please advise me further so I can actually know if I am right.

W.H., *Newark, N. J.*

P. S. Can a Minneapolis theromstat be used with a Perfex relay?

A. Your letter does not state correctly the technical points of the text to which you refer.

First: You can use any snap-acting two-wire room thermostat or limit control with a Minneapolis-Honeywell oilburner panel. Simply connect the control to the white and blue terminals of the Minneapolis-Honeywell oilburner control panel. The rule to remember is, "The red terminal is not used." This refers to the modern Minneapolis-Honeywell control panels to which you refer; it does not apply to certain old models of these panels. You can use a snap-acting room thermostat of such makes as Mercoid, Penn, Perfex, etc.

Second: It is not correct to connect a Series 10 type Minneapolis-Honeywell room thermostat (or any other Minneapolis control of the Series 10 type) to any stack control panel or relay which does not have, for a thermostat circuit, the three, red white and blue terminals of the Series 10 type.

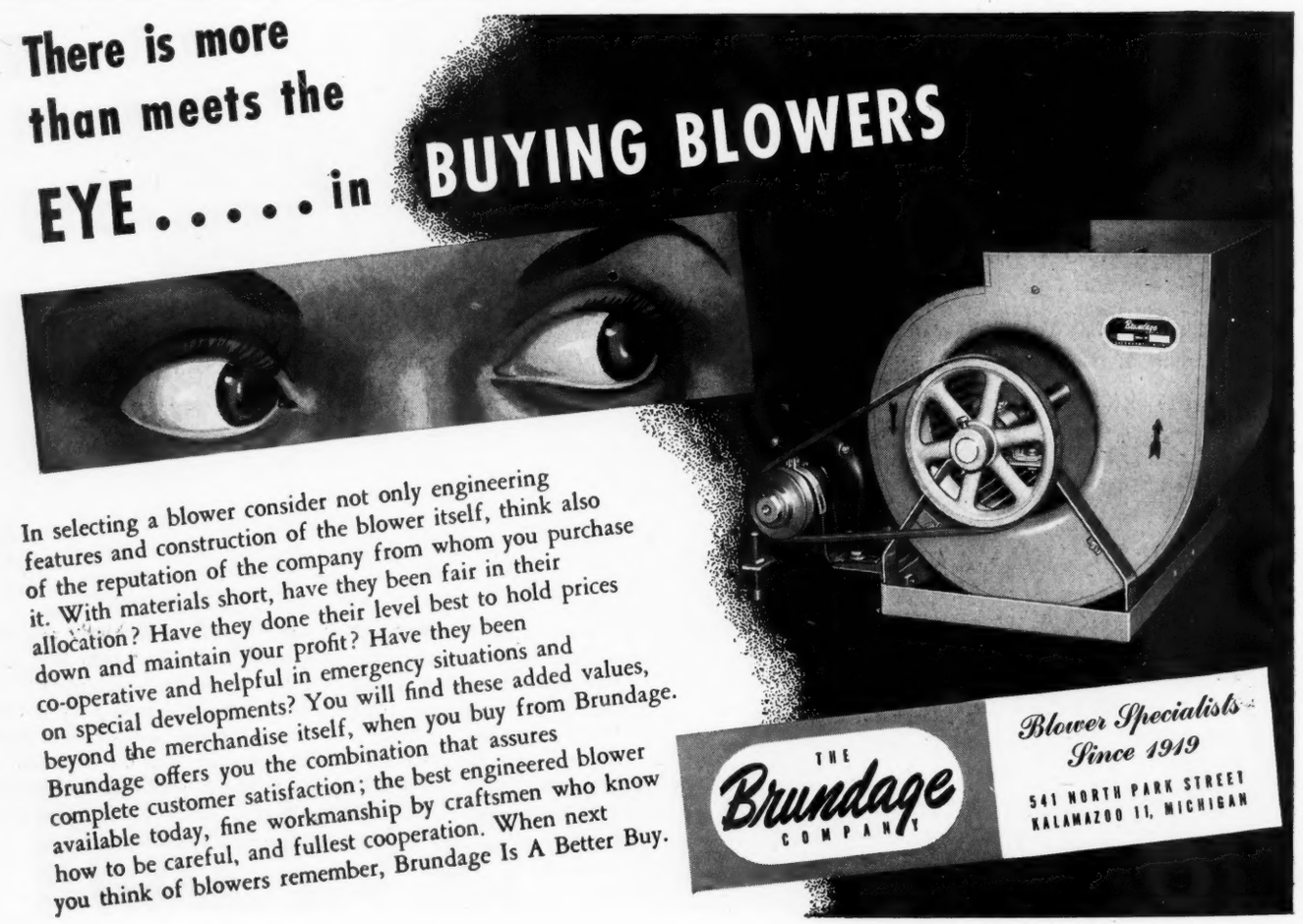
Here are complicating factors which are well known to control experts and which must be taken into account to discuss correctly such control questions as you bring up. First, although they are rare, two-wire controls which are not of the snap-acting type are manufactured. That is why control articles say repeatedly "two-wire, snap-acting controls." Second, there are Minneapolis-Honeywell controls, both room thermostats and limit controls, which are of the two-wire snap-acting type; although some of these commonly are used with Minneapolis-Honeywell type Series 10 relays and control panels, these room thermostats and limit controls are not the Series 10 type.

We believe you are asking about connecting a Series 10 Minneapolis-Honeywell room thermostat to a Perfex relay or burner control panel. That would be wrong. Connect a Series 10 room thermostat only to a relay or control panel of the Series 10 type.

Q. I am firing at 2.5 gph a boiler which the manufacturer says can be fired still harder than this, and the stack temperature reading is 790° F. Getting the unusually high CO_2 reading of 9¼% for an actual job, doesn't that make the boiler efficiency very high, and doesn't that mean the stack temperature is low enough?

B.W.S., *Boston*

A. According to good practice, when fired at the highest rate recommended by the manufacturer, this boiler should produce a maximum stack temperature of 600°. The fire should be efficient, and the boiler should be clean. Offhand, any stack temperature reading above 600° is too high to please efficiency-minded oil-heating men. The stack temperature of this installation should be lower, if when fired at higher than 2.5 gph the boiler is


There is more
than meets the
EYE . . . . . in BUYING BLOWERS
In selecting a blower consider not only engineering features and construction of the blower itself, think also of the reputation of the company from whom you purchase it. With materials short, have they been fair in their allocation? Have they done their level best to hold prices down and maintain your profit? Have they been co-operative and helpful in emergency situations and on special developments? You will find these added values, beyond the merchandise itself, when you buy from Brundage. Brundage offers you the combination that assures complete customer satisfaction; the best engineered blower available today, fine workmanship by craftsmen who know how to be careful, and fullest cooperation. When next you think of blowers remember, Brundage Is A Better Buy.
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AIR CONDITIONING UNITS

(OIL OR GAS FIRED)

Distributors and Dealers are now being appointed for this highly profitable nationally known line of furnaces. Excellent territories in all parts of the nation are available. Write, wire, or phone immediately for prices and details.

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supposed to be highly efficient.

The matter of your 9¼% CO_2 reading should be considered separately from the matter of the 790° stack temperature.

While it is true that many old installations being tested for the first time produce CO_2 readings of 4% to 8%, the minimum passable reading for a new installation is 8%. Many well-educated burner men obtain readings of 11% to 12% CO_2 from their best installations. Taking that into consideration, it would seem that your 9¼% CO_2 reading, while above passing, is not high enough to be considered unusual and splendid.

In conclusion: The 790° stack temperature of this installation is too high. The 9¼% CO_2 reading indicates combustion quality is somewhat above the level which barely passes.

Q. New in the burner industry after graduating from engineering college before the war, I have studied every heating and oilburner textbook I could buy without being able to obtain data on (a) combustion space and firebox design for domestic oil-fired furnaces and boilers, (b) burner atomizing nozzle design, and (c) development and design of the all-important parts of a projection burner which pin down its ability to produce high efficiency.

My company is fed up with looking at oil-heating equipment that is built without the slightest knowledge of engineering principles. Some few makes of burners, oil-furnaces, and oil-boilers are really developed and designed properly, so as to arouse admiration and enthusiasm in the heart of engineers. Where is the engineering knowledge of the oilheating kept, and how does an engineering graduate learn more about oilheating than the current textbooks tell him?

J.D.A., *Chicago*

A. It is true that much of the advanced work done during the last ten years in the best oilheating development laboratories has not been reported on in the textbooks you mention. Fortunes are spent each year by large equipment companies which do intensive research and development work. The lives of many oilheating engineers are being given to attempts to make equipment more nearly perfect. But these companies which are spending fortunes on research work, and these engineers who are making oilheating betterment their life-work, do not always make a point of seeing to it that everyone gets the benefits of their latest advancements. The best of their accomplishments are found in the best oilheating equipment; because of these accomplishments, the quality of oil heating has been improved in recent years.

We regret that we are unable to tell you where you can learn to develop a boiler or furnace with an unusual combustion space, a superior atomizing nozzle, and an oil burner which produces outstanding efficiency. To produce a world-beater in any of these directions probably will call for combining the benefits of your engineering education with a rather complete knowledge of the best results obtained so far in the field of oilheating.

Q. Some of the local oilburner talent belittles your suggestion, in several technical articles, to use lower than 100 lbs. atomizing pressure. But I stop nozzle plugging by using 60 or 75 lbs. as you recommend. A 1.0 gph nozzle plugs often, so I switch to a 1.25 or 1.35 nozzle and I lower the pressure to get the old flame size.

By working on fuel units, I get down to 50 (even 40) lbs. atomizing pressure.

The Bethlehem DYNATHERM

WITH THE WHIRLING FLAME

BUILDS MORE SALES
by satisfying more customers

Here's the finest, most thoroughly engineered PACKAGE UNIT ever built! The Bethlehem Dynatherm with the money-saving, fuel-saving "whirling flame" is within reach of every home owner, regardless how modest the budget. It's as simple, automatic and self-contained as an electric refrigerator. The Bethlehem Dynatherm—product of a century-old company—costs amazingly little more than converting an old boiler!

A few exclusive Bethlehem Dynatherm territory Franchises are still available. Wire or write immediately for full information.

THE BETHLEHEM FOUNDRY & MACHINE COMPANY
BETHLEHEM, PENNSYLVANIA

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PREVENTS EXPLOSIONS

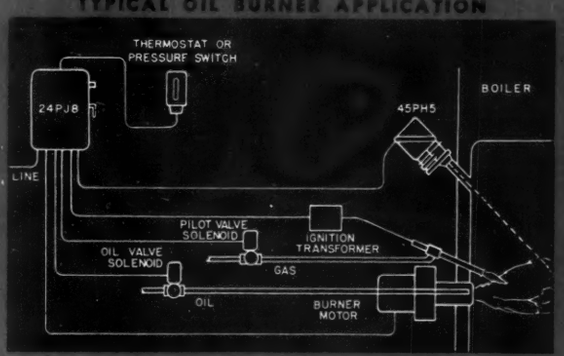
THE SAFE • MODERN *Electronic* COMBUSTION SAFEGUARD FOR OIL • GAS • PULVERIZED COAL BURNERS

A Complete Combustion Control System providing:

- CONTINUOUS *Electronic* MONITORING OF OIL OR GAS FLAME
- PROGRAMMING CONTROL FOR AUTOMATIC IGNITION SYSTEMS
- BOILER WATER LEVEL CONTROL AND LOW LEVEL SAFEGUARD

Programming control type 24PJ8 for all full automatic ignition gas and oil burner installations.

TYPICAL OIL BURNER APPLICATION



Photoelectric scanner type 45PH5 for automatic ignition oil burner installations.

Flame Rod 45JP1 for monitoring gas pilot flame on automatic ignition oil burner installation.

NOW AVAILABLE TO EQUIPMENT MANUFACTURERS, JOBBERS AND DISTRIBUTORS

Send for Bulletin 604

COMBUSTION CONTROL CORPORATION

Flame Failure Safeguards fireye *Boiler Feedwater Controls*

77 BROADWAY, CAMBRIDGE 42, MASS.

To make sure that 50 lbs. is all right, I'm trying 40 lbs. on three burners which I'm watching closely, but which I haven't had to touch in eight months. If combustion is excellent (very clean and bright and with over 8% CO_2 in unusually small boilers converted to oil) according to good, thorough instrument check-ups, and the jobs perform beautifully in every way as far as I can judge, what's the harm in pressure as low as 40 lbs.?

H.K., *Bronx, N. Y.*

A. Check particularly for leaky shut-off valves, where you tune for atomizing pressure as low as 40 lbs. Write to the fuel unit manufacturer for an opinion on whether or not you can expect the shut-off valve to work as well as it does with the fuel unit adjusted for higher pressure.

Check closely on nozzle performance, especially on degree of atomization and on spray angle. Select your nozzles with great care. Write to a few well-known nozzle manufacturers for comments and suggestions on your experiments. The trial use of special nozzle designs may be indicated. You need nozzles that atomize well and maintain their spray angles dependably with 50 lbs. atomizing pressure.

In overall, the proof of the pudding is in the heating. If you know burners backwards and forwards and in a year or two can show exceptional results obtained on a few dozen installations through using 40 to 50 lbs. atomizing pressure, you may be leading to an advancement in oilheating.

◈

Harold Stein has been named sales manager of Powermatic Div., Kresno-Stamm Mfg. Co., Palisades Park, N. J., with headquarters at the Hackensack, N. J., factory. Other personnel announcements reveal *Art Nugent* as sales manager of the vaporizing burner division at the main plant; *Martin Holden* in charge of the Granby, Quebec, factory and *Harry Warswick* in charge of European operations, with headquarters in London.

Joseph A. Cully and *James L. Sands* have joined the advertising staff of Perfection Stove Co., Cleveland, Ohio. Mr. Cully, who will work on the copy desk, operated his own advertising agency from 1939 to 1945 and has had important positions with other agencies and concerns. Mr. Sands joins the production staff and formerly served as art production manager for several agencies. During the war he was engaged in the production of job training books for the U. S. Navy.

P. M. Hutchins is now manager of advertising and sales promotion for Jones & Brown, Pittsburgh, Pa., national distributors of Inselbric-Inselstone refractory materials. Mr. Hutchins began his new duties September 1. He had been employed for more than two years in a similar capacity by National Radiator Co.

Karl G. Richards has been named manager, furnace oil department in the Long Island City district, N. Y., in one of a series of personnel changes in the Marketing Dept., Sun Oil Co., Philadelphia, Pa. He succeeds *J. W. Ryan,* who is now training manager, New York region. *D. S. Shipley,* former manager furnace oil sales, Baltimore, has been transferred to the home offices. Other appointments: *Harry L. Crawford,* district manager, Cincinnati; *Elmer H. Ross,* acting district manager, Grand Rapids; *P. H. Harrison, Jr.,* district manager, Lawrence, Mass.; *Thomas F. Neal,* district manager, Lansing; *George E. Kuipers,* merchandising manager, Pittsburgh Region.

SLUDGE the Octopus
of FUEL OIL INEFFICIENCY
WASTE OF FUEL OIL
CLOGGED BURNER NOZZLES
CONGESTED FUEL LINES—RUST AND CORROSION
DIMINISHED STORAGE SPACE
IMPAIRED COMBUSTION
DETERIORATION OF TANK
• Combat Sludge . . . Increase Production with NO-SLUDGE...the Guaranteed Fuel Oil Treatment.
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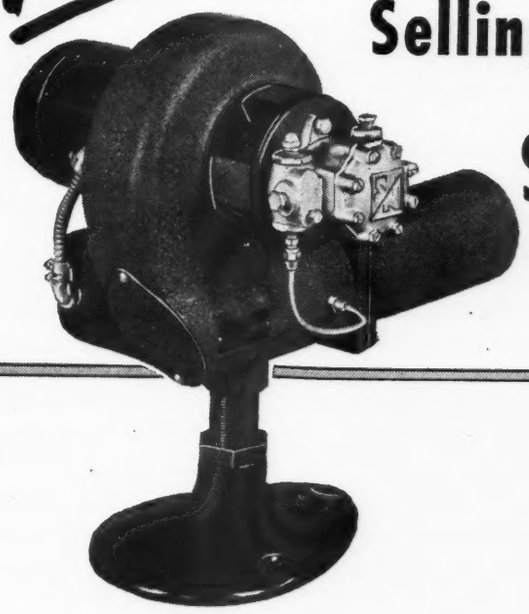
Plan Now For Profitable Year-Around Selling with the Complete SCOTT-NEWCOMB Line



Are you looking to the future — when you can again sell a complete line of heating, cooling and other related equipment? Then look at the list of high quality S-N products that can be real profit makers for you.

To assure constant production of these items Scott-Newcomb has just purchased a new modern factory with 100,000 square feet of floor space. This expansion will provide manufacturing facilities great enough to keep abreast of the increasing demand for S-N products.

The first model of the S-N oil burner was produced by L. L. Scott and E. C. Newcomb in 1917. It was the first pressure atomizing burner. Today many of the developments of these two men are in general use — including electric ignition, thermal type safety-pressure oil cut-off valve, non-leaking oil pump driven at motor speed.

It is the constant search for new and better designs and better methods of manufacturing that has kept the Scott-Newcomb product far ahead in quality. These are products which you can sell with complete confidence — at a price that will give your customer greater value for his dollar.

Both now, and for the future, this is an extremely valuable franchise. Get it for your territory *NOW!* Write today, giving complete information about your past experience.

These S-N Items Are Available for Delivery NOW

- Oil Burners, for No. 3 Oil
- Furnaces — Oil, Gas and Coal Burning
- Boilers — Steel and Cast Iron
- Oil Water Heaters
- Kitchen and Bathroom Ventilating Fans

These S-N Items Will Be Available Soon

- Zeromatic Frozen Food Lockers
- Store and Room Coolers
- Attic Fans and Blowers
- Space Heaters
- Water Softeners
- Vacuum Cleaners
- Kitchen Cabinets
- Garbage Disposers

See these attractive, fast-selling S-N products at the 8th International Heating and Ventilating Exposition, Grand Central Palace, New York, Booth No. 350.

SCOTT S N NEWCOMB

SCOTT-NEWCOMB, Inc. 1442 S. BOYLE AVE. ST. LOUIS 10, MISSOURI

Controlled Air Delivery

(*Continued from page 80*)

tion could not take place, furnished the taking off point. If the air could be so thoroughly mixed that each of the millions of tiny droplets issuing from the nozzle could be intimately contacted by the oxygen, the oil would be much easier to ignite and burn to completion. This thoroughly rich mixture would possess all of the attributes of the more volatile fuel due to the mechanical mixing of air with the oil to a degree not heretofore realized. It would burn normally with an efficiency that previously was only expected in unusual cases.

In practice this proved to be the case. With the advent of the first such head, the results were definite and conclusive and followed through on the theory that controlled, precise, and directed air delivery was the answer to the so-called problem of catalytic oil.

This air delivery simmered down to three adjustments. First, the position of the inner air tube over the nozzle. Second, the position and angle of spray of the nozzle and thirdly, the regulation of the opening at the rear of the inner air tube. A knowledge of these is all that is necessary to set these new turbulators. These factors and their easy adjustment mean a definite step forward for the high pressure gun type burner. A step that means less service, quieter operation, real increased combustion efficiency, and lower costs for the light fueloil consumers.

◈

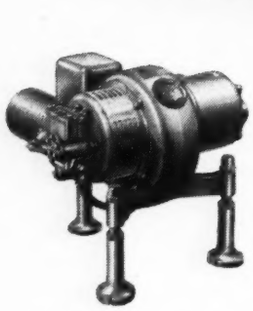
Paul D. Davidson, new works manager of the Evans Products Co. plant near Plymouth, Mich., will direct all production operations of Evans complete line, including oilburning space and water heaters and furnace units. The Plymouth plant, built in 1941 and purchased by Evans in 1945, contains more than 330,739 sq. ft. of working space, with all facilities on one floor. In addition to having its own power house, construction is almost completed on a 30,000 sq. ft. warehouse.

Louis L. Schneider has been named resident representative in Syracuse, N. Y., for Emerson Electric Mfg. Co., St. Louis 21, Mo. He will service customers for electric motors in upper New York and western Pennsylvania.

Rene J. Bender, who for the past fifteen years has been associated with Sinclair Refining Co. in an engineering capacity, has become assistant to the president, Sinclair Petroleum Co. and will represent the company in Addis Ababa, Ethiopia. "Chief" Bender edited the company publication, *Sinclair Firebox* for ten years and has been a frequent contributor of many technical papers on fuels to engineering societies and magazines. Upon his return from two years of overseas Navy service he was attached to Sinclair's home office.

D. W. Russell, president, Airtemp Div., Chrysler Corp., has been elected unanimously as one of two representatives from Air Conditioning and Refrigerating Machinery Association to the Standards Council, American Standards Association, whose primary function is formulation of rules for development of industry standards.

WHY DEALERS WANT THE HART LINE



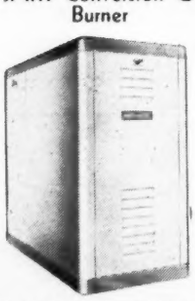
HART Conversion Oil Burner

★ HART Line Is A Complete Line — Includes Oil, Gas and Coal Units.
★ HART Line, Because It Is Complete, Creates Increased Sales.
★ Exclusive HART Franchise.
★ Prompt, Assured Deliveries.
★ Generous Profit Margin.
★ High Quality, Low Cost Make HART Heat Easy To Sell.
★ HART Heat Backed By 26 Years Of Experience.
★ Smartly Styled, Quiet Operation, Low Cost Performance.
★ Engineered Equipment — Easy To Install, Easy To Service.

A Few Franchises Still Available

HART equipment is sold internationally through better distributors. Write for the name of the distributor nearest you.

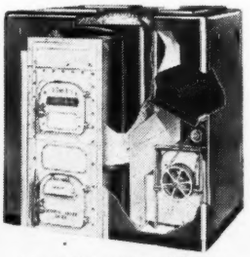
HART Gas Fired Winter Air Conditioner



HART Oil Fired Winter Air Conditioner

"Home is where the HART is"

HART
OIL BURNER DEPARTMENT
of
AVERY FARM MACHINERY CO.
PEORIA, ILLINOIS



HART Coal Fired Winter Air Conditioner

CROTTY MANUFACTURING CORP., FLUSHING, NEW YORK

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VISCO *Safety* FUEL OIL HEATER

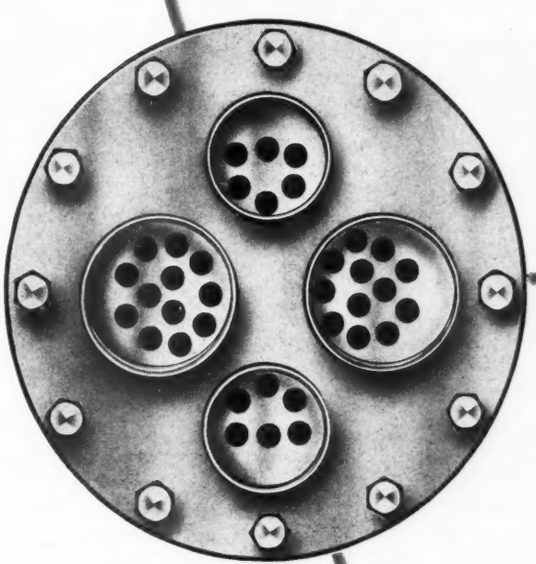
The engineering skill and "know how" that produced the famous Crotty residential home heating boiler (pictured below) and the amazing Crotty water wall furnace for economical heavy oil firing gives you another "Crotty First"—an efficient, simplified fuel oil heater that is Safe.

Remove that Bugaboo of VIOLATION from your jobs and at the same time avail yourself of the powerful selling points that the Visco *Safety* fueloil heater adds to your sales presentation!

FOR 10 YEARS THE VISCO HEATER HAS BEEN TESTED AND PROVED BY THE LARGEST MANUFACTURERS OF INDUSTRIAL OIL BURNERS

VISCO HEATERS ARE SPECIFIED BY LEADING CONSULTING ENGINEERS

The Visco Safety Heater is now approved by the Board of Standards and Appeals of the City of New York. Cal.—No. 371.-47.SA



Descriptive Literature and Price List on Request.

The Crotty Mfg. Corporation

133-15—35th Avenue

Flushing, N. Y.

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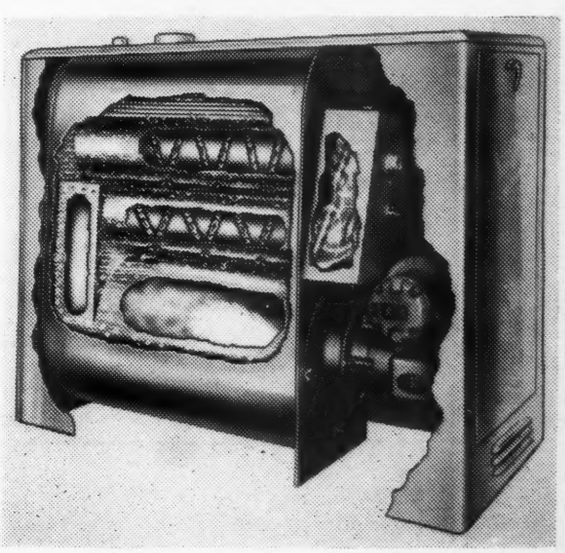
FOR RESIDENTIAL HEATING

No Other Boiler Like It!



Safety

PLUS

Simplicity

- **NO OIL GASKET**
- **WELDED STEEL CONSTRUCTION**
- **HEAVY COPPER TUBES**
- **READILY CLEANED WITHOUT DISCONNECTING PIPING**
- **IN EVENT OF TUBE FAILURE OIL CANNOT CONTAMINATE BOILER**

Hundreds of Crotty Boilers are being shipped every week

Sales Literature

BRIEF DESCRIPTIONS of catalogs and sales literature prepared and offered by manufacturers appear below. Those interested in securing copies of the booklets, or additional information on products described, are urged to write direct to the manufacturers.

Norman Products Co., Columbus 12, Ohio. A large illustrated folder on Norman hydrozylating conversion oilburner. Contains detailed description of design, construction and performance features of the vaporizing burner and emphasizes advantages of the shorter, swirling flame produced.

Renick & Mahoney, Inc., New York 6, N. Y. Catalog No. 47R, embodying a complete line of equipment for the oil trade. The 96-page catalog, including two pages of alphabetical index, pictures and fully describes hundreds of items of oil storing and oil handling equipment for both large and small applications. Capacities and dimensional data are shown, wherever applicable, with recommendations for suggested uses included. A footnote points out that prices shown represent manufacturers prices in effect April 1, 1947, and that prices at the time of shipment will apply.

Lancaster Heat Transfer Co., Inc., Brooklyn 1, N. Y. An installation and service manual for Lancaster horizontal rotary burners. Being made available to their dealers and distributors, the manual incorporates information on installing and servicing the burners, with illustrations of different types of burners, piping layout plans, combustion chamber construction design, and wiring diagrams. An alphabetized index lists pages on which specific subjects are discussed. Following the installation instructions for direct and belt-driven burners and those burning No. 6, No. 5 or lighter distillate oils not preheated, a separate chapter deals with service problems, their cause and correction.

H. A. Howell Oil Burner Co., Dixon, Ill. Data sheet on conversion oilburner, for conversion use and application in boiler or furnace-burner units. Specifications, capacities and dimensions are shown in table and diagram. An envelope stuffer also pictures and describes for consumer prospects construction and operating features of Howell "Controlled Flame" gun burners.

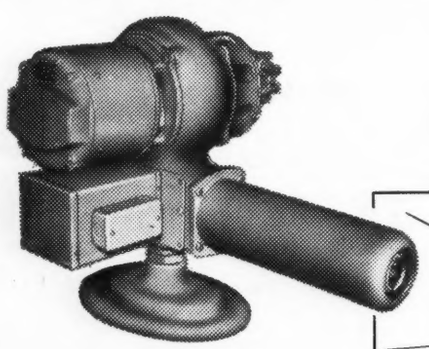
AutomaticBurner Corp., Chicago 12, Ill. Four-page folder, illustrating the company's line of gun type conversion burners, boiler and furnace-burner units and all-steel range burner. Literature points out the company's experience, reputation and promotion helps available to dealers.

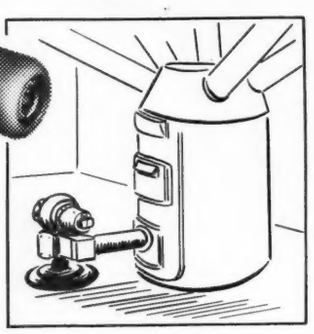
Davis Eng. Corp., Elizabeth, N. J. Bulletin No. 60 on Paracoil fueloil heaters, showing a complete line with a wide variety of capacities and applications. Specification tables give capacity ratings at different temperature rises and steam pressures and other tables list dimensions and heater weights. Numerous illustrations and diagrams augment technical data given.

H. B. Smith Co., Inc., Westfield, Mass. Attractive booklet, "40 Facts About Modern Radiant Heating," which explains in non-technical language the principles of radiant heating and the importance of selecting quality equipment. The booklet is intended to be used in explaining to the prospective home builder, or heating system purchaser, factors involved in choosing types of systems and equipment.

New! - Improved!
Ready For Delivery!

AMERICAN
★ DeLuxe ★
OIL BURNERS





Dealers find a ready market for the new American DeLuxe Oil Burner Model No. 300-A. Its practical, proven features recommend it to careful buyers. It is quiet—economical to operate—and compact.

Easily installed as a conversion heating unit in home or commercial heating systems. Built with all moving parts automatically aligned by four cup-shaped bolts to reduce vibration, and cut service cost. It's built to give years of service to your customers. Approved by Underwriters Laboratories, Inc.

SPECIFICATIONS
MOTOR—1/4 H.P. Long hour duty. Bronze bearings.
TRANSFORMER—10,000 volts. Intermittent ignition.
PUMP—Internal gear type.
NOZZLE—Alloy stainless steel. Cylindrical type strainer.
FAN—Pressed metal Sirocco type.
COUPLING—Composition rubber and metal.
MAXIMUM CAPACITY—3 G.P.H. 1200 sq. ft. of steam.
GRADE OF OIL—No. 3 Commercial Standard.
ELECTRICAL CHARACTERISTICS—110 volts, 60 cycles. Odd cycle, odd voltage or D.C. current furnished on request.
FINISH—Metallic blue or bright red.

Write for descriptive folder. Attractive price quotations to dealers, wholesalers and jobbers.

AMERICAN
HEATING & ENGINEERING CO.
601 East 5th Street New Albany, Ind.
Manufacturers of oil and gas heating equipment

MIRACLE in Peoria

A HOUSING REALITY--
NOT A HOUSING PLAN!

HUNDREDS OF MOR-SUN U-4-G GAS-FIRED FORCED AIR FURNACES SUPPLY HUNDREDS OF G. I. HOMES WITH YEAR ROUND INDOOR COMFORT!

Hundreds of G.I. families are living in prefabs* in Peoria—and every one is equipped with a MOR-SUN Heating System!

And what a system! With a house heat loss of 45,000 BTU's, the MOR-SUN packaged gas-fired forced air furnace — with an output of 58,000 BTU's — in a centrally located service room — took only three hours of two men's time** to install (including the runs to the various rooms)!

Each of these hundreds of G.I. families has more than a heating plant—each has a MOR-SUN U-4-G*** that supplies year-round indoor comfort!

You Get MORE with a MOR-SUN!

General Contractors — Best Construction Co., Peoria

***Heating Contractors — Lee Wagener Co., Peoria*

****MOR-SUN Midwest Sales Representative — F. C. Evans, St. Louis*

MOR-SUN STEEL FURNACES

MORRISON STEEL PRODUCTS, INC., BUFFALO 7, N.Y.

"The Sun Never Sets with MOR-SUN"

I Used Gas A Year

(*Continued from page* 81)

stop any secondary air from entering the boiler above the fire.

After adjustment the burner was put into operation and a constant firing rate was maintained by the burner with a constant CO_2 of 10½% and 580 Degree F stack temperature during the entire year.

While there was a fluctuation in oil prices during the year's period between 8 and 9.2 cents a gallon the value per gallon can be taken at 8.2 cents for the year as only three deliveries were made to the 1000 gallon oil storage tank which supply carried beyond the test period.

During the 12 month period January sixteenth to January sixteenth 1947, 2532 gallons of #2 or medium grade fueloil were used at a billed cost of $206.73 for heat and hot water. During the summer with the house fully occupied the cost of oil for water heating was $8.20 for June-July and $7.49 for July to August periods.

While there was a difference in the total degree days for the two years in favor of the year oil was used, a correction factor applied to the above amount increases the cost of oilheating for the year from $206.73 to $222.00; further this figure compares very favorably with the estimated consumption of $220.00 for a standard year. The value then of $222.00 can be compared directly with the cost of gas heating of $329.24.

In summarizing the data determined from these tests it is obvious first that the use of gas as a fuel in this case was far more costly than oil, both for heating and for water heating, by 32½% in the case of heat, and 50% for water heating.

There is a distinct disadvantage to the consumer in the presentation of high fuel bills with machine gun regularity even though these bills for heating are somewhat leveled off by the added tax levied during the off heating season.

In the case of gas with the sliding rate scale, that is—the more you use the less you pay per unit, no monetary advantage can be secured by the lowering of consumption, which condition does not apply to fueloil. In other words if you want to reduce the house temperature with oil used as a fuel, you just don't use as much oil and the cost of heating the house is less for this period of time for the price of oil per gallon remains the same whether a lot or little oil is used for heating. This is not the case with gas however. As you reduce the house temperature to save fuel you use less gas but (and this is the joker) the cost per cubic foot of gas becomes more costly to the consumer so that whether a lot of gas or a small amount of gas is used the cost remains constant or nearly so.

One of the great things about this country is our individualism, our right to deal with those who please us. When we deal with an oil supplier who does not please us we change to some other supplier. When gas is used as a fuel the customer is stuck with his supplier and there is nothing he can do about it.

One last and important point is cleanliness of the two fuels. To prove this point microscope slides were secured to windows over radiators and under examination each slide showed the same amount of lint deposit upon it. There was no indication of carbon or other form of black in the slide examined during the oil firing period. The color of both slides, as closely as could be judged, was the same. It should be pointed

OIL BURNING EQUIPMENT

You Can Recommend with Confidence

FOR PERFECT HEAVY OIL BURNING UNDER ALL OPERATING CONDITIONS

Ace UNIFLOW OIL BURNERS

HORIZONTAL ROTARY

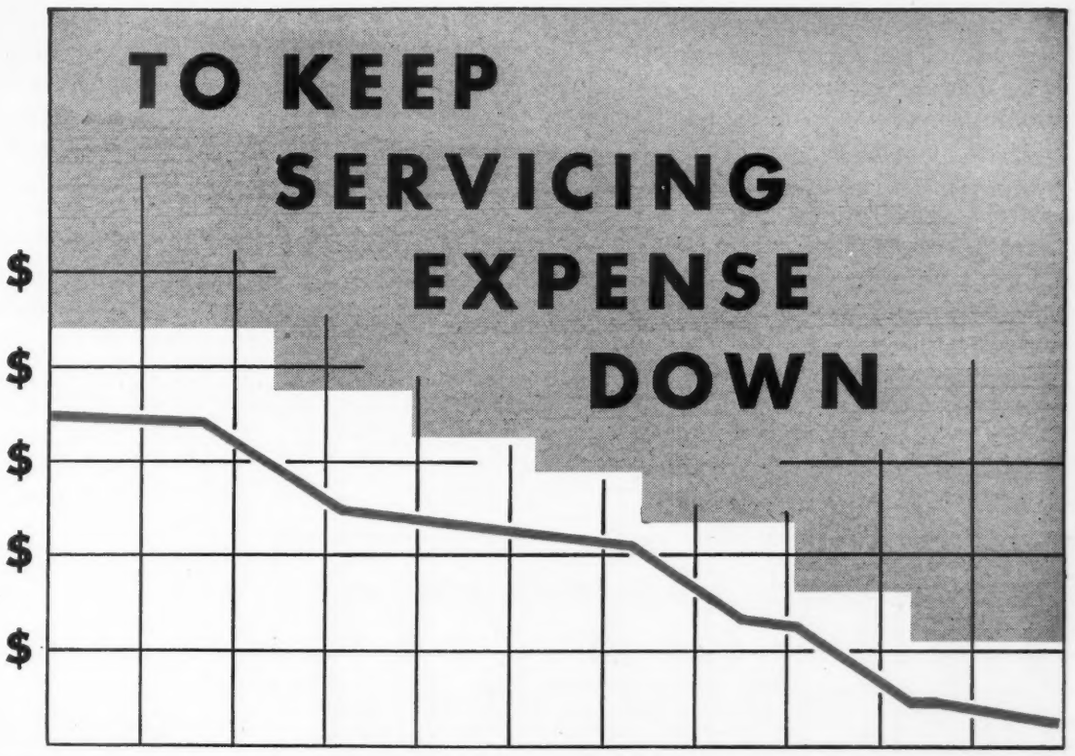
Capacity Ranges

	GALLONS PER HOUR	BOILER H.P.	SQUARE FEET STEAM RAD.
MINIMUM	2	6	800
MAXIMUM	165	500	64,000

ACE ENGINEERING CO.

1435 W. 15th Street • Chicago, Illinois

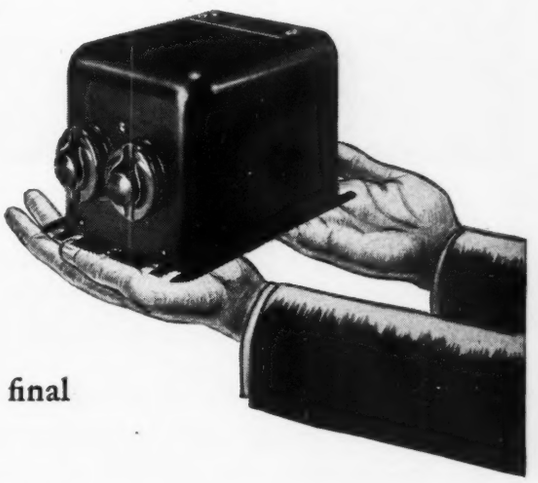
Custom Engineered Oil Burning Systems Since 1931



USE JEFFERSON ELECTRIC TRANSFORMERS

Unnecessary service calls mean unnecessary expense—the time of men and equipment that can be put to more profitable purpose.

Uniformity of quality—an outstanding advantage in the Transformers you use, is the best preventive of wasteful service calls.



Uniformity of quality is the outstanding characteristic of Jefferson Electric Transformers—a well-established characteristic resulting from complete control of all manufacturing steps—from the original engineering and rigid specifications of materials, through to the final tests and inspection.

Quality in mass production quantity insures the same uniformity whether you require small or large lots. Such Transformers assure uniform performance wherever used . . . JEFFERSON ELECTRIC COMPANY, Bellwood (Chicago Suburb), Illinois. *In Canada:* Canadian Jefferson Electric Co., Ltd., 384 Pape Avenue, Toronto, Ont.

JEFFERSON ELECTRIC

fueloil & oil heat

out that this house is equipped with a kitchen exhaust fan which discharges water vapor generated over the open gas flame and from cooking pot to the outside, not permitting this moisture to condense on windows to collect dust and lint in air streams rising from radiators.

It is obvious therefore that oilheating from a cost point of view has a distinct advantage over gas heating and that there is nothing miraculous in the latter fuel other than sound advertising to divert the consumer to gas instead of oil.

Manufacturers Activities

Oil-O-Matic Sales Clinics Held; Burners Sent Norway Prince

A BRIEFING in the fundamentals of good old-fashioned selling is being carried on by Williams Div., Eureka Williams Corp., Bloomington, Ill., manufacturers of Oil-O-Matic oilburners and units. A series of sales clinics were opened with sessions on the Pacific Coast, followed by a similar three-day clinic, attended by fifty, at Utica, N. Y. and another session at Boston, August 6 to 8, attended by 100 salesmen.

R. L. Plante, instructor from the factory, conducts the clinics, assisted by divisional managers and sales representatives. W. A. Matheson, executive vice-president, Williams Div., explained that the meetings were being held as a necessary part of the company's post-war merchandising program, as well as a service to dealers, in an attempt to ready the dealers and their salesmen to cash in at the point of sale in the developing buyer's market.

Export business for the Division is well along in its post-war revival, as evidenced

by the shipment shown here being readied for export to Oslo, Norway. The three burners, being examined by M. P. Langdoc and H. C. Perry of the Oil-O-Matic Export Dept., will heat the home of Norway's Crown Prince Olaf.

"Air-Seel" Burner Granted Good Housekeeping Seal

STARTING THIS MONTH, the first of a series of advertisements by Silent Glow Oil Burner Corp., Hartford 6, Conn., featuring the "Air-Seel" burner will appear in *Good Housekeeping* magazine. The advertising was accepted after the burner had been investigated for quality, performance in use and accuracy of advertising claims, with the result that the company has been granted the right to use the *Good Housekeeping* Guaranty Seal, which provides, "Replacement or refund of

TO A USER the Electrol Ball Flame means years of quiet, clean, efficient heating service. It means performance that is high in comfort and low in operating costs.

TO A DEALER the Electrol Ball Flame stands for thousands of satisfied customers, continuous sales and profitable business. The Electrol story demands attention. Sell a burner that is different. Sell a burner with exclusive sales points. Sell Electrol.

ELECTROL BURNER MANUFACTURING CO., INC.

22 UNION AVENUE
RUTHERFORD, NEW JERSEY
RUTHERFORD 2-8300

Field is Honored

by the recognition given by these manufacturers of The Finest in heating products. They and others use Field, The Best in barometric draft controls.

ANCHOR STOVE & RANGE DIVISION
STRATTON & TERSTEGGE CO., INC.
LOUISVILLE, KENTUCKY

A. O. SMITH CORPORATION
MILWAUKEE, WISCONSIN

ARMSTRONG FURNACE CO.
COLUMBUS, OHIO

AVERY FARM MACHINERY CO.
PEORIA, ILLINOIS

BROWN STOVE WORKS, INC.
CLEVELAND, TENNESSEE

CHARTER OAK STOVE & RANGE CO.
ST. LOUIS, MISSOURI

CLEVELAND STEEL PRODUCTS CORP.
CLEVELAND, OHIO

COLE HOT BLAST MFG. CO.
CHICAGO, ILLINOIS

COLONIAL BEACON OIL COMPANY
NEW YORK, NEW YORK

COMBUSTIONEER DIVISION, STEEL PRODUCTS ENGINEERING CO.
SPRINGFIELD, OHIO

CRANE COMPANY
CHICAGO, ILLINOIS

DOWAGIAC STEEL FURNACE CO.
DOWAGIAC, MICHIGAN

EAGLE STOVE WORKS
ROME, GEORGIA

ESTATE HEATROLA DIVISION
NOMA ELECTRIC CORPORATION
HAMILTON, OHIO

EVANS PRODUCTS COMPANY
PLYMOUTH, MICHIGAN

THE FARQUHAR FURNACE CO.
WILMINGTON, OHIO

FLAME MANUFACTURING CO.
MINNEAPOLIS, MINNESOTA

FLORENCE STOVE COMPANY
GARDNER, MASSACHUSETTS

FURBLO COMPANY
HERMANSVILLE, MICHIGAN

GENERAL BRONZE CORPORATION
LONG ISLAND CITY, NEW YORK

GLENWOOD RANGE COMPANY
TAUNTON, MASSACHUSETTS

GOULD OIL BURNER SALES CO.
EAST BOSTON, MASSACHUSETTS

GREEN COLONIAL FURNACE CO.
DES MOINES, IOWA

GROSSENBACHER FURNACE CO., INC.
ST. LOUIS, MISSOURI

HALL-NEAL FURNACE CO.
INDIANAPOLIS, INDIANA

H. A. HOWELL OIL BURNER CO.
DIXON, ILLINOIS

H. C. LITTLE BURNER CO.
SAN RAFAEL, CALIFORNIA

HEATCRAFT COMPANY
LOUISVILLE, KENTUCKY

HOLCOMB & HOKE MFG. CO., INC.
INDIANAPOLIS, INDIANA

HOLLAND FURNACE COMPANY
HOLLAND, MICHIGAN

INDEPENDENT OIL BURNER CORP.
JAMAICA, NEW YORK

INTERNATIONAL OIL BURNER CO.
ST. LOUIS, MISSOURI

KALAMAZOO STOVE & FURNACE CO.
KALAMAZOO, MICHIGAN

KING STOVE & RANGE COMPANY
SHEFFIELD, ALABAMA

KOL-GAS HEATER COMPANY
NASHVILLE, TENNESSEE

KRESKY MFG. CO., INC.
PETALUMA, CALIFORNIA

LENNOX FURNACE CO.
MARSHALLTOWN, IOWA

LINK-BELT COMPANY
CHICAGO, ILLINOIS

LOCHINVAR PRODUCTS DIVISION
MICHIGAN TANK & FURNACE CORP.
DEARBORN, MICHIGAN

LOCKE STOVE COMPANY
KANSAS CITY, MISSOURI

LYNN PRODUCTS CO., INC.
LYNN, MASSACHUSETTS

THE MAJESTIC COMPANY
HUNTINGTON, INDIANA

MALLEABLE IRON RANGE CO.
BEAVER DAM, WISCONSIN

MASCOT STOVE COMPANY
CHATTANOOGA, TENNESSEE

MEYER FURNACE COMPANY
PEORIA, ILLINOIS

MONTAG STOVE & FURNACE WORKS
PORTLAND, OREGON

THE MOORE DIVISION
CONLON-MOORE CORPORATION
JOLIET, ILLINOIS

MUNCIE GEAR WORKS, INC.
MUNCIE, INDIANA

NORGE DIVISION
BORG-WARNER CORP.
DETROIT, MICHIGAN

OHIO STOVE COMPANY
PORTSMOUTH, OHIO

PHILLIPS & BUTTORFF MFG. CO.
NASHVILLE, TENNESSEE

POCAHONTAS FUEL CO., INC.
STOKER DIVISION
CLEVELAND, OHIO

PREMIER FURNACE COMPANY
DOWAGIAC, MICHIGAN

THE QUINCY STOVE MFG. CO.
QUINCY, ILLINOIS

RADIATION FURNACE CORP.
BENTON HARBOR, MICHIGAN

REGAL PRODUCTS CO.
GAYS MILLS, WISCONSIN

SCHWAB SAFE COMPANY
LAFAYETTE, INDIANA

S. T. JOHNSON COMPANY
OAKLAND, CALIFORNIA

SUN-FIRE STOKER CORP.
NEW ALBANY, INDIANA

TENNESSEE STOVE WORKS
CHATTANOOGA, TENNESSEE

TIMKEN SILENT AUTOMATIC DIV.
TIMKEN DETROIT AXLE CO.
JACKSON, MICHIGAN

UNION STEEL PRODUCTS CO.
ALBION, MICHIGAN

THE WATERMAN-WATERBURY CO.
MINNEAPOLIS, MINNESOTA

WISCONSIN OIL BURNER CO.
MADISON, WISCONSIN

The National Warm Air Heating and Air Conditioning Association recommends a good barometric draft control.

The "Best for the Finest"

Field Draft Controls—"The Best for The Finest" coal, oil, and gas fired Furnaces and Boilers; Winter air-conditioners; Space heaters; Stoves; Ranges; Water heaters.

CONTROLLED DRAFT BY Field

FIELD CONTROL DIVISION

H. D. CONKEY & COMPANY · MENDOTA, ILLINOIS

money guaranteed by *Good Housekeeping* if not as advertised therein."

Large Crowd In Attendance At Perfex Annual Picnic

MORE THAN 6,000 employees and guests of Perfex Corp., Milwaukee 7, Wis., attended the annual picnic held on July 19 at State Fair Park. Cool morning weather got the affair off to a slow start, but clearing and warmer temperatures in the afternoon boosted spirits and attendance.

An all-star ball game between Plants 1 and 2, saw the latter win a 10 to 1 decision. Horseshoe pitching contest was won by Ira Jackson.

Radiant Utilities Expands Line And Field Services

JACK GOLDBERG, president, Radiant Utilities Corp., Brooklyn 14, N. Y., manufacturers of Radiant conversion oilburners, has announced substantial additions to his field services, instituting an advisory section to help dealers raise efficiencies and overcome installation and service difficulties. Himself a jobber of parts for many years and an expert on burner installation matters, Mr. Goldberg has placed himself at the disposal of his dealers.

Burners in the 5, 15 and 20 gallon per hour range have been added to the line.

Floral City Installing Kres-Kno Burners In Units

UNDER CONTRACT with Kres-Kno Stamm Mfg. Co., Inc., Palisades Park, N. J., Floral City Heater Co., Monroe, Mich., is offering an oilfired furnace unit, equipped with a Kres-Kno Ball Flame oilburner. The burner is a forced draft vaporizing model.

R & I Advertising Campaign Publicizes Complete Line

A MAILING PIECE, distributed recently by Refractory & Insulation Corp., New York 5, N. Y., explained to dealers a complete and continuing advertising campaign being conducted. It is concentrated in domestic and industrial heating trade papers, including FUELOIL & OIL HEAT, whose combined circulation totals more than 125,000. The advertisements, of varying sizes and shapes, point out advantages of R & I refractory and insulating cements, combustion chambers and baffles.

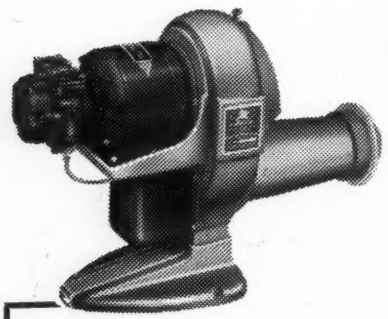
It is explained that the campaign is designed not only to sell R & I products, but to help directly the outlets that handle them. In addition, the company's force of salesmen assists wherever possible.

Dole Valve Company Names Three Sales Representatives

THREE OUTLETS have been named recently by Dole Valve Co., Chicago 12, Ill., as sales representatives for the company's line of air and vacuum valves, water mixers and special products. They are: Bryant-Colorado Co., Denver, Colo.; Norman S. Wright & Co., San Francisco 7, Cal., and T. C. French Co., Meadville, Pa., covering the Cleveland territory.

Minn.-Hon. Interim Report Covers Six Months Period

AN INTERIM REPORT, for the six months period ending June 30, issued by Minneapolis-Honeywell Regulator Co., Minneapolis, Minn., shows a profit from opera-



You install more than an Oil Burner When you sell the Beckett COMMODORE

The BECKETT COMMODORE burner is the product of seasoned engineering and reputable workmanship. Its superiority in furnishing economical heat for a long time is proved every time one is installed. Amazing performance is possible, not only because of advanced design and mechanical features, but because there is a basic improvement in the method of admixing air and oil for combustion. Every minute the BECKETT COMMODORE is in operation—starting, running, stopping—it saves fuel for the user. You install superior economy, long life, quiet, clean heat. Yes, even freedom from heating worries.

Compare the BECKETT COMMODORE with other burners—in design, workmanship, adaptability—you'll see why users are enthusiastic—why every BECKETT COMMODORE in use helps sell others.

For homes — churches — schools — apartments — business buildings — special applications

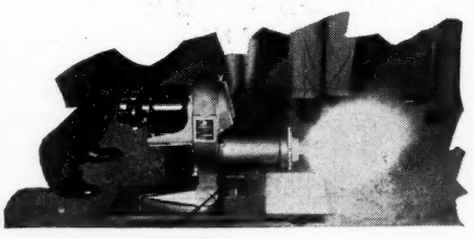
Some COMMODORE Features—

- **Progressive air rotation—positive air delivery makes cleaner, quieter, better fires**
- **No parts exposed to flame or high temperature**
- **More dependable ignition**
- **Lower nozzle temperature**
- **Automatic damper control—saves fuel**
- **High tension cable eliminated**
- **All rotating parts dynamically balanced**
- **Motor and pump shafts accurately aligned**
- **Four main assemblies—accessible — special tools not needed**
- **Easy installation and adjustments—tamper proof**
- **Finger-tip air control—tamper proof**

COMMODORE OIL BURNERS

THE R. W. BECKETT CORPORATION

ELYRIA, OHIO



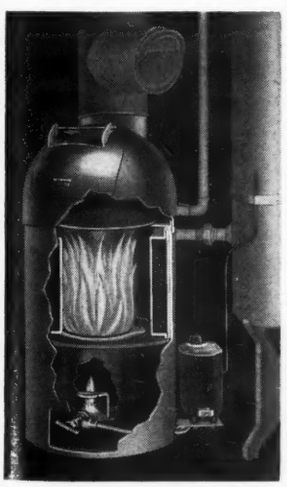
Beckett Commodore burns outdoors without aid of fire box—ignition out off—retains normal flame.

Now YOU CAN SELL Automatic HOT WATER

AT AN Amazingly LOW PRICE!

RUDY Gilcor

AUTOMATIC OIL BURNING HOT WATER SUPPLY BOILER



Unit is shipped completely assembled and includes temperature control and retaining band. Water jacket is plated and heat-treated to form LifeCote surface. Burner and controls are the same as used on much more expensive heaters.

With the Rudy-Gilcor Hot Water Supply Boiler you can sell to a tremendous new market. The unit has all the convenience, advantage and service features of conventional storage type water heaters, yet retails for approximately half as much.

Pilot flame, fuel cut off and temperature control are all completely automatic. Recovery (55 gallons per hour 60° rise) is exceptionally rapid. Installation and operating costs are low.

Home Owners . . . Farmers . . . Operators of small businesses . . . Hundreds of prospects want inexpensive automatic hot water. Converting furnace-coil and side-arm systems offers a big market alone.

Investigate the Rudy-Gilcor today — it's a profitable unit that's priced for volume sales.

The Rudy Furnace Company and the Gilcor Products Corporation have combined their engineering and production facilities to produce the Rudy-Gilcor Automatic Oil Burning Hot Water Supply Boiler . . .

For Full Information Write to Either . . .

RUDY FURNACE COMPANY
Dowagiac, Michigan

GILCOR PRODUCTS CORP.
Dowagiac, Michigan

tions of $5,591,348.04, compared with $2,617,076.70, for the same period last year. After provisions for income and capital stock taxes, and other charges, the resultant net income for this year totals $3,302,342.97, compared with $1,630,665.96, last year.

It is pointed out that the statement is an interim report and is, therefore, subject to adjustment for difference between estimated inventory figures and figures based on a physical inventory, and other normal adjustments. Nor, are operations of European and Mexican subsidiaries included in the report. Net sales for six months ending June 30, include $501,825.22 to these outlets.

Counter Display Designed By Debler For Edco Nozzles

A DISPLAY for use on jobbers' counters to identify them as representatives for Edco nozzles and accessories has been designed by William J. Debler and Sons, Philadelphia, Pa., jobber representatives for Eddington Metal Specialties Co., Eddington, Pa. They are being distributed already assembled for display.

A wooden easel supports the heavy cardboard display, which measures 16" high, 9" wide and 6" deep. The base lists Edco accessories available and has attached to its center a dummy metal nozzle. Upper portion of the display consists of a 10" cut-a-way view of an Edco oilburner nozzle to show construction and component parts.

Commercial Filters Opens New York District Office

ESTABLISHMENT of a New York district office has been revealed by Commercial Filters Corp., Boston 27, Mass., with the announcement that James M. Morrison will manage the branch opened at 92 Liberty St., New York 6, N. Y. Harold C. Corwin will assist in the operation of the office.

R. L. Fielding, vice president, Commercial Filters, cites the desire to render more adequate service to customers and a rapidly increasing business in Metropolitan New York as the reasons prompting the opening of the office. All orders and inquiries concerning Fulflo filters, parts and accessories, should be directed to the New York office, since Commercial's sales agency agreement with Messrs. King and Shepherd has expired.

Heatcraft Displays Products At New Albany Celebration

DISPLAYS OF PRODUCTS manufactured in New Albany, Ind., to commemorate the 100th birthday of the Monon railroad, which originated there, included one prepared by Heatcraft Co., Louisville, Ky. The company, which qualified because one of its manufacturing units is located

PROOF OF GREATER SALES

"Our Federal Sales Stay High!"

says prominent supply company executive.

Monroe Plumbing & Heating Supply Corp.

PLUMBING, HEATING AND OIL BURNER MATERIALS
1066 BEDFORD AVENUE
BROOKLYN 5, N. Y.

Federal Boiler Co., Inc.
Granite & West Sts.,
Midland Park, N.J.

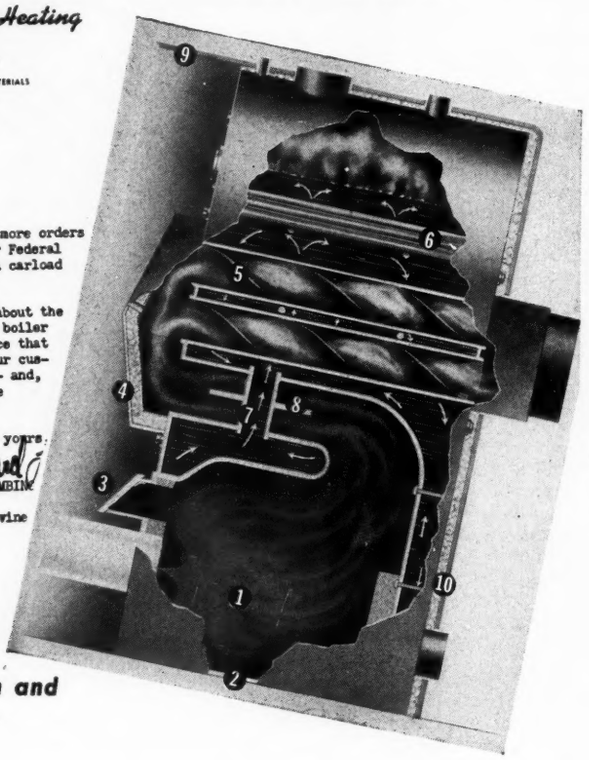
Gentlemen:

We keep getting more and more orders for your boiler - in fact, our Federal sales stay high - so send us a carload of mixed sizes.

We're very enthusiastic about the large volume of sales on your boiler because we know from experience that Federal Boilers always give our customers complete satisfaction - and, in that way, build up our name and good will.

Very truly yours,
MONROE PLUMBING
Bernard Levine

BL:wb



Guaranteed Shipment with Steel Jackets, Baked Enamel Finish and Instantaneous Coils

Yes . . . it's an endorsed, accepted fact that FEDERAL builds a compact, efficient boiler that gives definite customer satisfaction!

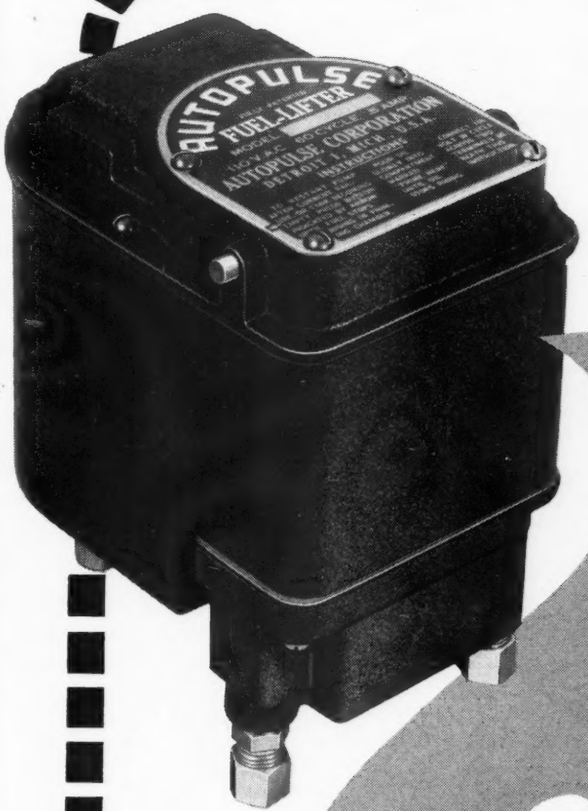
GET THE FACTS

FEDERAL BOILER CO., INC.
MIDLAND PARK, N. J.

FEDERAL BOILER CO., INC. FO 8
Granite & West Streets, Midland Park, N. J.
Gentlemen:
Please send me Price Sheets and Bulletin No. 121.
Name .....
Address .....

AUTOPULSE

ELECTRIC FUEL LIFTER



1

for LIGHT OIL BURNERS

This unit is a low-cost, highly practical, effective fuel feed for pot type or rotary burners where fuel tank is below the burner—ideal for multiple housing projects. Use SWH Model.

2

for CIRCULATING HEATERS

Models SW and SWH completely modernize burners equipped with tanks or constant level burners. Carrying fuel or filling the tank by hand is no longer necessary.

3

RANGE OIL BURNERS

Models S and SH are ideal for first, second and some third floor installations. These units completely modernize range oil burner installations.

Delivery within 30 days

WRITE US DIRECT FOR QUOTATION

AUTOPULSE Corporation

2821 Brooklyn Ave. • Detroit 1, Mich.

in New Albany, showed its line of heating equipment, according to H. E. Culley, who heads the organization.

No particular sales effort was placed on any particular piece of equipment, but actual orders were taken for installations of Heatcraft conversion burners in seventeen surrounding counties. Oilfired winter air conditioning units placed second in sales, trailed by coal stokers and furnaces. The market area includes a typical cross section of industrialists, professional men, white collar workers, laborers and representation from farm communities.

Laclede-Christy Purchases Osceola Firebrick Company

ANNOUNCEMENT of the purchase of all capital stock of Osceola Silica & Firebrick Co., Osceola Mills, Pa., by Laclede-Christy Clay Products Co., St. Louis, Mo., has been made by W. W. Shipley, vice president of the latter company. Purchase of the plant, which has an annual capacity of ten million fire brick, was made out of working capital and marks the advent of Laclede-Christy in the eastern industrial market.

Albert B. Agnew, an outstanding operating executive in the refractory industry, has been appointed Osceola's general manager.

S-N Acquires Factory Site; Plans Radiant Heat Training

ACQUISITION of a 75-acre tract of land has been announced by Scott-Newcomb, Inc., St. Louis, Mo. The property, built by the government in 1942 at a cost of $1,143,000, is totally enclosed by a cyclone fence with more than 100,000 sq. ft. of floor space on a single floor. New machinery is being added at a cost of approximately $80,000 and when installed will permit the manufacture of the complete line of Scott-Newcomb heating and cooling equipment. Among new products to be introduced is a pressed-steel boiler of compact design, made up of sections which can be added to increase the capacity. The boiler, which can be oilfired, is designed particularly for radiant heating installations.

The company plans training for all its outlet in radiant heating and has built two modern homes, developing new building ideas and improved radiant heating methods. Dealers will be furnished plans, specifications and photographs of the homes for distribution to customers.

Newark Increases Production Of Oilburner Transformers

PRODUCTION FACILITIES for oilburner ignition transformers, at Newark Transformer Co., Linden, N. J., have been increased greatly since the firm began activities. The company has been a manufacturer of transformers in the specialty field for twenty-five years and entered the oilburner field some time ago, retaining the same technical staff and equipment.

Offering a complete line at competitive prices, with base plates and outlets for standard and special applications, Newark has evolved original designs on coil impregnation, laminations and radio shielding. Its volume production is being accompanied by a program of research and development of new ideas. According to a company spokesman, sources are established for an adequate supply of wire and steel, to insure continued production.

"HI-TEMP" The Boiler They'll Buy . . .

AFTER COMPARISON WITH OTHER AVAILABLE TYPES

Stronger, More Durable Steel Construction— New Heating Efficiency— Low Operating and Maintenance Costs.

BUILT TO GIVE BETTER VALUE AT SAME PRICE AS OTHER QUALITY BOILERS OF COMPARABLE SIZE

Equipped With High-Efficiency Underwriters Approved Oil Burner

"HI-TEMP" . . . the boiler you will be proud to recommend because of its unequalled value and assurance of long, satisfactory service. Utilizes fast-heat principles of large Scotch Marine type boilers. Provides highest heating efficiency through exceptionally large heating surface, quick heat transfer, low stack temperature and properly placed insulation. Produces approximately 240 gallons of hot water per hour at 100° temperature rise. Furnished as complete "package," ready to install . . . boiler, burner and attractive two-tone metal cover cabinet.

Write Today for Descriptive Circular and Specifications

Developed and Manufactured by

ARTHUR C. BAUMANN

70th STREET and GRAYS AVE., PHILADELPHIA 42, PA.

no waiting . . . you're next!

The sign in the corner barber shop didn't mince words. It said what it meant . . . immediate service!

We're ready, at last, to offer you the same.

It took time. It took patience . . . on your part as well as ours. But today we can promise prompt shipment of Quiet May oil burners to all our dealers . . . to meet the expanding nation-wide demand for Quiet May's dependable performance.

The dealership in your area may be open. Write and see! **MAY OIL BURNER Division, GEROTOR MAY CORP., Baltimore 3, Md.**

QUIET MAY OIL BURNER

fuel oil & oil heat

GENERAL
FUEL OIL
FILTERS

William J. Debler and Sons
Automatic Heat Devices
PHILADELPHIA, NEWARK, BOSTON

EASTERN FACTORY REPRESENTATIVES
Main Office
790 BROAD STREET, NEWARK 2, N. J.

JOBBER REPRESENTATIVES
STAINLESS STEEL NOZZLES
SERVICEMAN'S NOZZLE KITS
PRESSURE REGULATING VALVES
BRASS NOZZLE ADAPTERS
WIRE MESH STRAINERS
AIR CONES and STABILIZERS

New Products

Conversion Burner Line Announced by Malco Gear

MODELS K-1 and K-2 conversion oilburners, announced by Malco Gear Co., Dolton, Ill., are pressure atomizing types,

equipped with a 4" diameter, steel blast tube, which may have either a welded flange or a sliding joint to fit fan housing. A cast-iron air cone is installed in the end of the blast tube, and the electrode holder is so placed as to act also as an air deflector. Long hour 1/6 or 1/4 hp. motors, with flange or adaptor mountings, and standard fuel units, consisting of a strainer, a fuel pump of the rotary gear type and a combination pressure and shut-off valve, are standard equipment.

Burners are rated from 1 to 4 gph, burning Nos. 1, 2 or 3 oil, and weigh 150 lbs.

Rudy-Gilcor Combine Facilities On Hot Water Supply Boiler

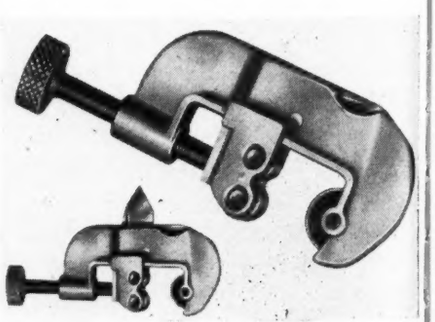
RUDY FURNACE CO. and Gilcor Products Corp., both Dowagiac, Mich., have pooled their production, engineering and distribution facilities to manufacture a new automatic oilfired hot water supply boiler. There will be no corporate connection, but the product will be marketed by both under the name Rudy-Gilcor.

A vaporizing burner fires the unit, which features a temperature adjustment knob and thermo bulb attached to range

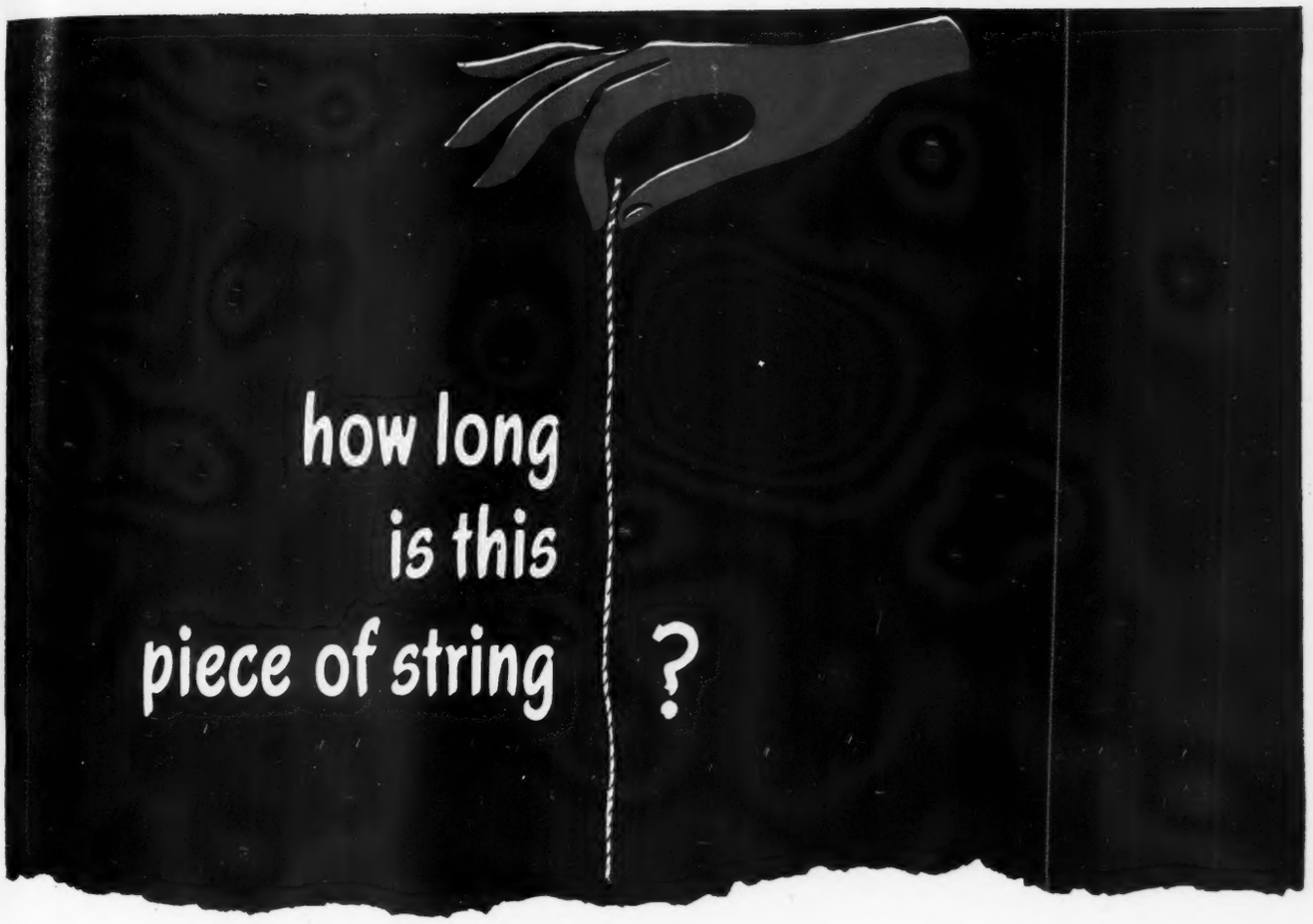
boiler to provide automatic control of water temperature. A water jacket, surrounding the fire pot, is lined with Life-Cote to retard corrosion under harsh water conditions. At a 60° temperature rise, the heater has a recovery rate of 55 gph. No. 1 fueloil is burned at the rate of 1 qt. per hr. on high fire. Safety shut off feature on the automatic control operates if flame fails.

C & C Copper Tube Cutter With Folding Reamer Blade

A COPPER TUBING CUTTER, announced by C & C Die Casting Co., Boston, Mass.,



features a spring-loaded folding reamer blade, which operates like a jackknife blade. The cutter is composed of a zinc alloy, die-cast body and vise, with case hardened rollers and tool steel roller cutter. A fine thread screw permits adjust-



You don't know until you measure it

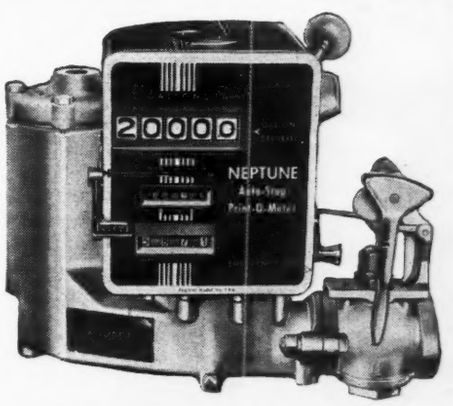
No matter how much of an eagle eye you have, it would be strictly a matter of luck if you guessed the length of the above piece of string. And to know how accurate was your guess you would still have to measure the string.

And in measuring your gallonage, too, there's one way to be sure—meter it . . . with a Neptune Red Seal Meter. And your auditing department and the tax collector will accept the figures, while they wouldn't accept a "guesstimate."

Neptune Red Seal Meters are precision engineered, each being composed of several, easily accessible units. Such simplicity means any necessary servicing can be done with ease and speed. And speaking of servicing did you know about . . .

NEPTUNE'S EXCLUSIVE MONEY-SAVING UNIT REPLACEMENT PLAN

Like any mechanical device, Neptune Meters need occasional attention. So to make your investment completely satisfactory, we have a plan that permits you to exchange work-worn units for factory rebuilt replacements, at low cost. Adequate stocks of these parts are kept on hand at our strategically located branches and petroleum equipment jobbers' warehouses. No more expensive rebuilding or repairing in the field. Your equipment is kept in constant service. You save money, time, temper.



THERE'S A NEPTUNE METER to fit every one of your bulk plant and tank truck requirements. Special type of construction saves valuable pay-load space and weight. Optional are: Auto-Stop, which permits automatic delivery of preset gallonage and Print-O-Meter that provides fool-proof printed ticket showing exact quantity delivered.

FOR ACCURATE MEASURING OF YOUR GALLONAGE . .

NEPTUNE RED SEAL METERS

NEPTUNE METER COMPANY, 50 West 50th Street, New York 20, N. Y. *Branch Offices in:* Atlanta • Boston • Chicago • Dallas • Denver • Kansas City, Mo. • Los Angeles • Louisville • Philadelphia • Portland, Ore. • San Francisco • NEPTUNE METERS, LTD., Long Branch, Ont., Canada

fueloil & oil heat

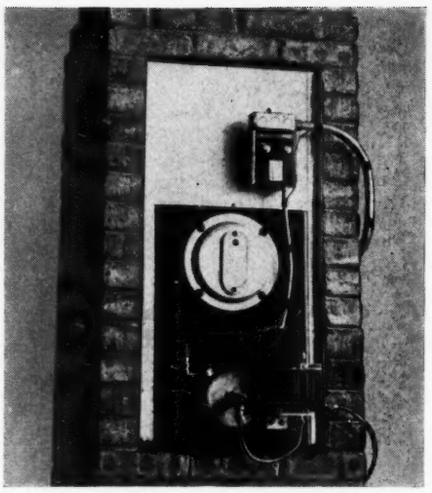
ment to accommodate tubing from 1/8" to 1" diameter. Designed to assure accurate alignment of cut, six tube cutters are individually boxed in each display carton.

Sarco Thermostatic Traps Equipped With Helical Bellows

CAST-STEEL thermostatic traps, announced by Sarco Co., Inc., New York 17, N. Y., are equipped with patented helical bellows to satisfy demands for traps which will withstand the shock of external explosions, handle corrosive condensate and operate with pressures up to 300 psi or with superheat. The flexible bellows is the only working part and there are no seats to change for pressure changes or fluctuations. When installed to discharge to the atmosphere, no protection is required against freezing.

Mortemp Furnace Unit Designed For Installation In Chimney

A FURNACE UNIT, announced by Chimney Furnace Corp., Rockville, Md., consists of a vaporizing burner, fired directly upward into a vertical porcelain steel flue.



The mechanism is installed inside the chimney, with a 2" air space left between the porcelain-steel and the brick. Much duct work is eliminated with the unit, which provides a blower, located above the first floor, to draw return air at ceiling height and force it down through the 2" air space. Passing along the porcelain-steel surface, the air is warmed and then delivered into house circulation through openings cut into the chimney, or by ducts to more distant rooms.

It is possible to locate the chimney, in which Mortemp units are installed, centrally or it can be used as a wall-corner and plastered over. Outside dimensions of the brick casing are 25" square. Designed primarily for smaller homes, the chimney furnace fits most houses being built under the current housing program and has been accepted under FHA insured loans. A specially developed application combines radiant heat with forced warm air by forcing air through pipes cast in the floor, after which heat is vented into the rooms through registers. A simple attachment changes the fan from a winter heat distributor to summer air circulator.

Class 50 Series Roller Pumps Being Produced By Kraissl Co.

CLASS 50 series pumps, designed for applications where operation at direct motor speeds is desirable when handling liquids with some lubricating value, are available from Kraissl Co., Hackensack, N. J. Standard pumps are made with bodies of iron construction, with pump rollers of hardened steel. Depending upon size and

BACHARACH'S
NEW! ALL-PURPOSE DRAFT GAUGE
Meets Every Need for INSTALLING and SERVICING Every Type of HEATING EQUIPMENT

Gauge can be located any distance from test point. Reads .25" on 3-inch scale. Free movement of pointer at zero to indicate "puff-backs." Stands firmly, or can be hung on wall. Body serves as reel for carrying rubber tubing. Accurate, durable, dependable.

Prompt Delivery

Write at once For Prices and Full Information

COLE-SEWELL ENGINEERING CO.
2288 University Ave.—St. Paul 4, Minn.

E-Z
FUEL OIL SOOT DESTROYER
Spray It!—
One Application does the Job.

E-Z Fuel Oil Soot Remover cleans right down to the metal. Easy — fast — safe. Engineers like it. Saves many times its cost in fuel. If your distributor cannot supply you, order direct.

No. 1 pkg. Approx. 1 lb. .....$1.00 ea.
No. 5 pkg. Approx. 5 lbs. ..... 4.50 ea.

DISTRIBUTORS: Write for our proposition.

HEALY-RUFF COMPANY
797 HAMPDEN AVE., ST. PAUL 4, MINN.

The Apthorp —TRUE ALIGNMENT—

OIL BURNER NOZZLE

Dependable Accurate

Leading oil burner manufacturers, distributors and dealers throughout the country say: "This is the finest oil burner nozzle we have ever used."

NOZZLE TIP—made of stainless steel . . . an outstanding example of fine precision workmanship. Special machining process produces smoother than ground finish on inside taper. Mirror finish oil orifice insures uniformly balanced spray and superior atomization.

STEM—made of stainless steel . . . carefully machined with perfectly tapered end matching exactly inside taper of the tip. Oil grooves are highly finished with best precision machinery to assure perfect atomization and delivery of each nozzle at its marked rating.

SPRING — made of tempered, heat-resisting stainless steel . . . cannot lose its tension . . . guaranteed not to fail for any reason. (Apthorp spring type nozzles in use for 15 years prove this statement.) Spring permanently maintains position of stem within nozzle tip.

STRAINER—of monel metal or stainless steel . . . large straining area . . . special fine mesh (120 x 108) for nozzles .75 to 1.35 G.P.H. capacity. 100 x 90 mesh for 1.50 to 5.00 G.P.H.

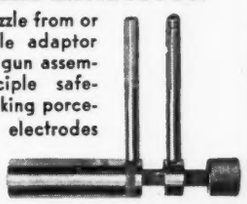
SPRING RETAINER — brass — Makes possible easy putting together or taking apart of entire assembly without any tool, (not even a screw driver needed). Screwing in spring retainer revolves both spring and stem several times, thus automatically seating stem with a perfect "taper to taper" fit inside nozzle tip.

Tip, stem, spring retainer and sturdy indestructible heat-treated stainless steel spring, plus 100 pounds of oil pressure, combine to maintain the perfect "taper to taper fit" throughout operation of the burner. This all important feature is patented and exclusive with the APTHORP "True Alignment" Nozzle.

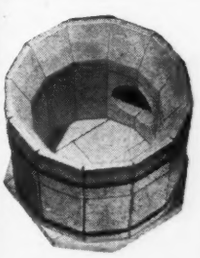
— All These Products Are Ready For Immediate Delivery —

BOSTON CHROME STEEL BAFFLE — MODEL 100
Improves combustion and reduces stack loss for greater heating efficiency. Write for complete details.

IDEAL NOZZLE EXTRACTOR



Easy to remove the nozzle from or install it in the nozzle adaptor without removing the gun assembly. Patented principle safeguarding against breaking porcelain and bending electrodes which commonly happens when ordinary wrenches are used.
Special socket for disassembling nozzle.



INSTANT-GLO Custom Built COMBUSTION CHAMBER
Made of insulating brick . . . provides a red-hot refractory surface throughout the full operating cycle of the burner, plus many other outstanding features.

CLEARVIEW OIL TANK GAUGE
Will not leak . . . clearly visible at a distance . . . designed for years of accurate service.

WRITE FOR COMPLETE INFORMATION

BOSTON MACHINE WORKS COMPANY

Oil Heating Supplies Division

BOSMACO

7-17 WILLOW ST., LYNN, MASS.

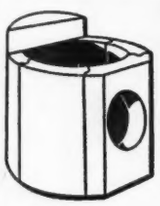
★ America's
OUTSTANDING DOMESTIC
REFRACTORY PRODUCTS
for Long Lasting
Installations

PRODUCTS OF

McLEOD & HENRY CO., INC.

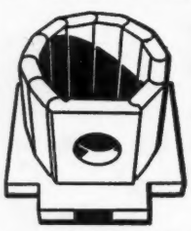
100 years of quality refractory products. All made of "Steel Mixture" flint clay with fusion point of 3200° F.

★ NU-TROJAN COMBUSTION CHAMBER



A permanent installation. Its 2" wall thickness holds it together without steel bands. 5 sizes to fit all boilers. Includes Baffle Head and 15 lbs. of flocr and bonding material.

★ STEEL-MIXTURE *flexible* COMBUSTION CHAMBER



Can be shaped to any contour. Interlocking joints are air-tight. In package sets with 15 lbs. of bonding and flooring material.

★ WEBCO TRIPOD REFRACTORY BAFFLE

Plate is 13" Dia. No. 1 size for chambers up to 13". No. 2 size for chambers up to 14".

★ FUEL SAVER HANGING BAFFLE

Has only 2 parts. Supplied in round shapes from 12" to 24" Dia.; rectangular shapes 12"x14" to 16"x24".

Send for Full Description on All Items. Jobbers Inquiries Invited. Write Dept. 61.

Distributed Exclusively By

A. R. WEBBER CO. INC.

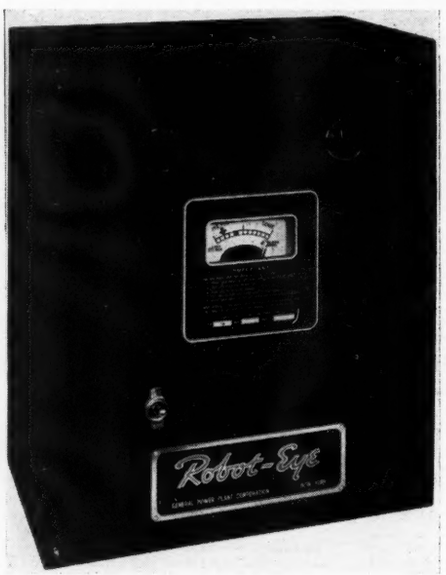
780 STATE ST., NEW HAVEN 11, CONN.

Everything for the Oil Burner Trade

application, either journal or needle bearings are furnished. Four sizes of standard pumps, equipped with return seal stuffing boxes, are designed for clockwise rotation and deliver from 1½ to 10 gpm at 1800 rpm and 1 to 7 gpm at 1200 rpm. Special pump constructions are available for specific applications and larger sizes are under development.

Robot Eye Controls Fuel-Air, Raises Combustion Efficiency

ROBOT EYE, a development of General Power Plant Corp., New York, N. Y., converts up-the-chimney heat into useful heat by precise control of the fuel-air ratio. An electric eye constantly checks the gases leaving the boiler. The eye is connected with the Robot Eye control panel, which, in turn, is connected to the air damper, and necessary changes in the



damper setting are transmitted through the panel.

Models now available are suitable for installation in commercial and industrial buildings. With burner off periods lengthened, smoke eliminated, and stack temperatures reduced, from use of the Robot Eye, fuel savings up to 25% are claimed. The control is adaptable to all steam atomizing and rotary cup oilburners, as well as pulverized coal burners.

Cellufoam Duct Covering

A DUCT COVERING, made of Cellufoam, which can be cut to measurements with shears, is being distributed by Airtex Corp., Chicago, Ill. After cutting to size,

NO GASKETS TO LEAK

THE SHELL OF AQUAHEATER IS FULLY WELDED

Banish leaky installations! Give homeowners years and years of trouble-free *hot* water! AQUAHEATER's compact streamlined all-welded steel shell has no bolts to tighten . . . no gaskets to leak. As only boiler water touches the shell, AQUAHEATER will last at least as long as a new boiler.

BETTER DESIGN The exclusive TURBUFLOW (Turbulence plus counterflow) coil soaks up the maximum boiler BTUs, producing more hot water at lower cost. Both shell and coil drain easily and completely.

PRE-FORMED INSULATION is supplied with AQUAHEATER at no extra cost, increasing profits by saving valuable installation time; stepping up water-heating efficiency and assuring a handsome job ideal for club basement or workroom. AQUAHEATER is much easier to hook up than back-breaking castings. AQUAHEATER's small size, its smart appearance, its ready supply of piping-hot water at all times, its simplicity and reliability are making and holding friends everywhere.

For Further Details, See Your Favorite Plumbing Supply House Or Write

JOSEPH E. LEWIS & CO., INC.

Department B2

1303 CARROLL ST., BALTIMORE 30, MD.

GUARDIAN *flexible* COUPLINGS

Sleeve end of coupling is close sliding fit on blower wheel hub. Power is transmitted through four spline ribs of coupling fitting four spline grooves in blower wheel hub.

FOR OIL BURNERS

These exclusive direct drive couplings with rubberized cushion gripped permanently, have no parts to lubricate or get out of order. Guardian Flexible Couplings minimize misalignment, free-end float, and backlash. Custom-made for specific jobs. Over a million tested and proved in oil burners in last ten years.

Manufacturers, Jobbers or Dealers—

GUARDIAN PRODUCTS CORP.
1213 E. Michigan St., Michigan City, Ind.

WRITE or WIRE

---

get rid of the "cold room" problem!

WITH THE *Gorton* SYSTEM of Vaporizing and Equalizing Valves

THE GORTON SYSTEM . . . gives automatic even distribution of heat to every room in the building . . . No cold rooms . . . Stops fuel waste.

EASY TO INSTALL . . . Any steam heating system can be easily changed to a GORTON VAPOR EQUALIZING SYSTEM . . . No piping changes necessary.

PROFITABLE TO HANDLE . . . A sure winner of satisfied customers!

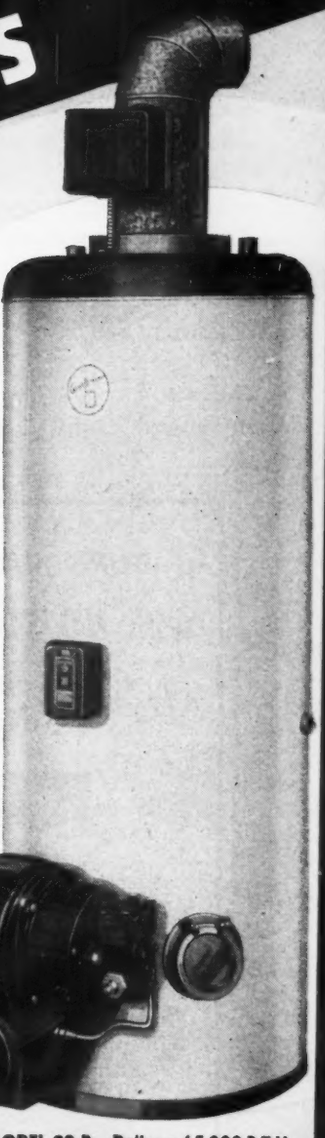
***Get the facts* . . . Write for Bulletin 115B today!**

GORTON HEATING CORP.
SINCE 1887
Manufacturers of High Grade Heating Equipment
CRANFORD • NEW JERSEY

For CUSTOMER SATISFACTION

Comfortzone

• OIL FIRED • WATER HEATERS • BOILERS



Satisfies a wide range of requirements

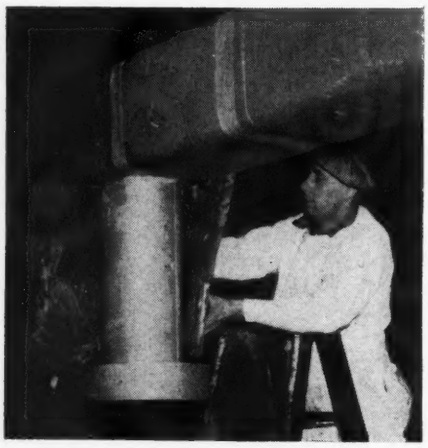
Ideal for single dwellings, apartment houses, barber shops, beauty parlors, bakeries, restaurants, gymnasiums or wherever an abundance of hot water is needed.

Comfortzone oil-fired hot water heaters and boilers are constructed of the finest steels, galvanized inside and out, built for many years of trouble-free operation. Economical—Compact—require very little operating space.

MODEL 90-B—Delivers 65,000 B.T.U. at the outlet. Can be used with or without auxiliary storage tank. (90 gallons of hot water raised 80°).

MODEL 200-B—Delivers 138,000 B.T.U. at the outlet. Can be used with or without auxiliary tank. (200 gallons of hot water raised 80°).

MICHIGAN
TANK & FURNACE CORP.
14247 TIREMAN AVE. • DEARBORN, MICH.



the covering is applied to ducts, either square or round surfaces, with an adhesive mixture of one gallon of cold water paste and a pint of silicate of soda. The adhesive, applied to the rough side of Cellufoam, is allowed to set until tacky and the covering then is pressed into place. Butt joints are recommended to be covered with 3" asbestos tape and the areas around hangers or other projections should be sealed thoroughly.

If desired, exposed ducts can be covered with 6 oz. canvas and then painted any color. Cellufoam, weighing 1½ lbs. per cu. ft., is furnished in sheets 30" x 48" x 1", 250 sq. ft. per carton. Resistant to heat, cold, flame, sound, vermin, decay, wear, dampness and mold, it can be used where surface temperatures do not exceed 275° F.

Hercules Offers Solvent To Remove Fueloil Sludge

TO ELIMINATE sludge, tar, gum and carbon from oil tanks and heating systems, Hercules Chemical Co., Inc., New York, N. Y., is offering a fueloil sludge solvent which is poured into the tank at the rate of 1 pt. for each 500 gals. of fueloil, ½ pt. for each 275 gals. The solvent keeps sediment in suspension and, in the process of burning treated fueloil, destroys soot particles.

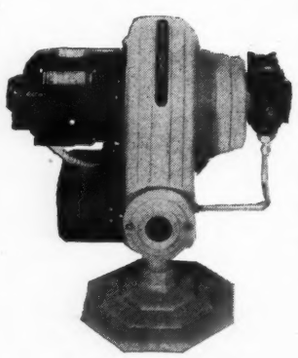
When used with Bunker C or No. 6 fueloil, recommended treatment is 1 gal. to 4,000 gals.

Central States Steel Boilers Can Be Fired By All Fuels

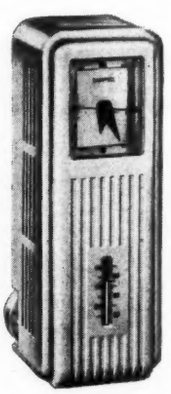
TWO LINES of boilers that are adaptable to firing by all types of fuels are produced

by Central States Steel Boiler Co., Chicago 44, Ill. Models B8, B12 and B17 are rated at 800, 1200 and 1744 sq. ft. steam and 530, 795 and 1090 sq. ft. hot water. Larger sizes in the R series range from 1400 to 4660 sq. ft. steam and 2240 to 7456 sq. ft. water. Boilers are constructed so that all models can be carried through normal door openings and, in

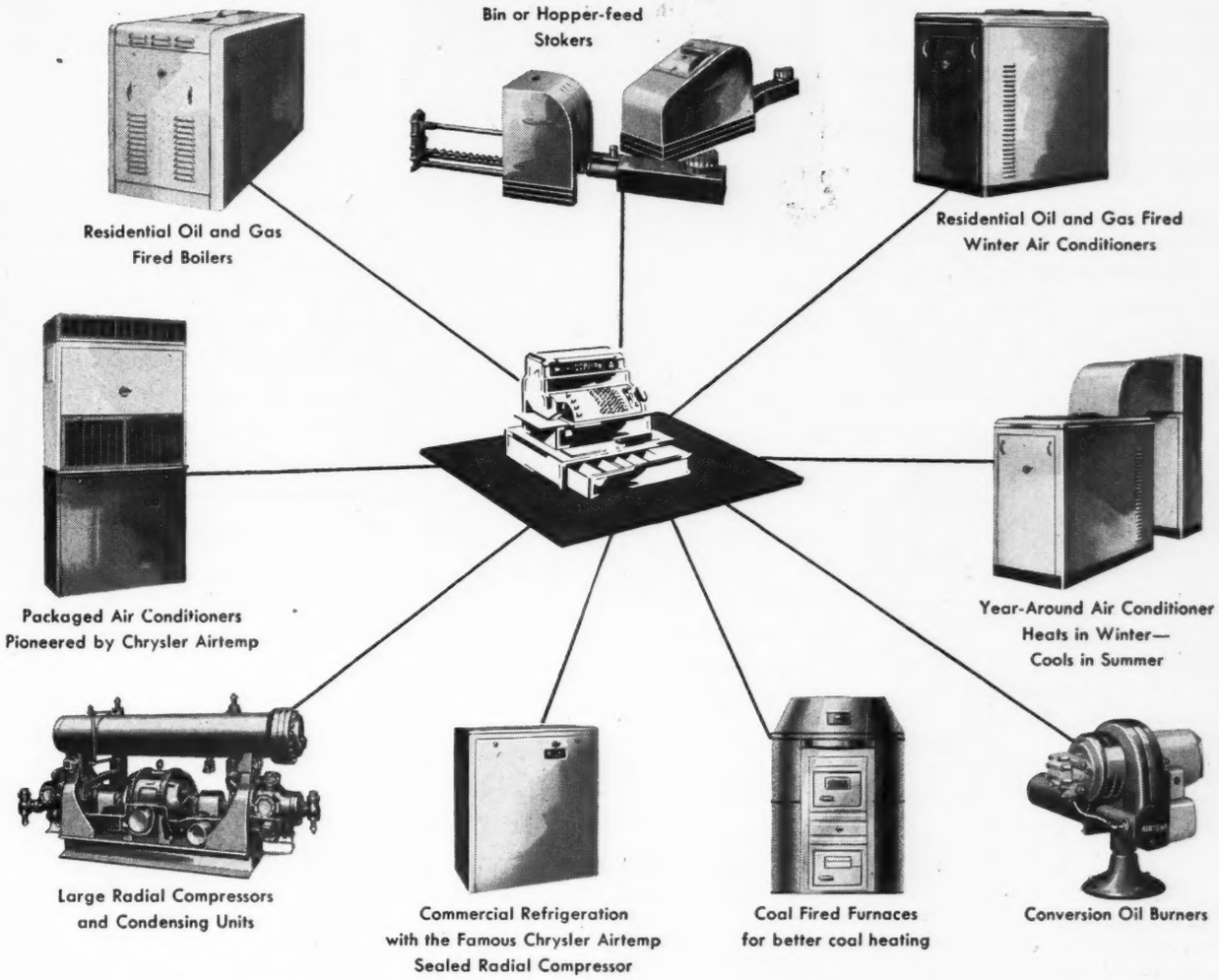
BURN CATALYTIC OILS EASILY
with NO SOOT and NO TROUBLE!
Sell and install the New, Improved
RADIANT
• OIL BURNER •



4 sizes . . . 1 to 20 gph
Low in Cost . . . Dependable . . . A profit-maker for dealers . . . easy to service because it was designed to reduce service costs and increase efficiencies.
"YOUR FUTURE IS BRIGHT WITH RADIANT!"
Literature on Request.
RADIANT UTILITIES CORP.
1859 Cropsey Ave. Brooklyn 14, N. Y.



Sampsel Day-Night Clock Thermostat
A Complete Line of Quality Controls
There is a complete line of proven, dependable Sampsel controls for finer performance, easy installation, and freedom from servicing. Write for illustrated catalog.
SAMPSEL TIME CONTROL, INC., Spring Valley, Ill.
Sampsel
AUTOMATIC CONTROLS
Canadian Sales Distributor: PEASE FOUNDRY CO., Ltd., Toronto 1


Residential Oil and Gas Fired Boilers
Bin or Hopper-feed Stokers
Residential Oil and Gas Fired Winter Air Conditioners
Packaged Air Conditioners Pioneered by Chrysler Airtemp
Year-Around Air Conditioner Heats in Winter— Cools in Summer
Large Radial Compressors and Condensing Units
Commercial Refrigeration with the Famous Chrysler Airtemp Sealed Radial Compressor
Coal Fired Furnaces for better coal heating
Conversion Oil Burners

THERE'S PROFIT IN THE AIR WITH CHRYSLER AIRTEMP

★

AMERICA'S MOST COMPLETE LINE OF HEATING, AIR CONDITIONING AND COMMERCIAL REFRIGERATION!

THERE'S always profit in the air for Chrysler Airtemp dealers—every month of every year—because Chrysler Airtemp offers the complete Triple Line: Heating, Air Conditioning and Commercial Refrigeration.

And every product of Chrysler Airtemp carries the extra selling punch of public acceptance because it is backed by Chrysler Corporation—famous the world over for engineering and production skill.

Now is the time to put yourself in a position to make money with Chrysler Airtemp. Some franchises are still available—franchises for one line, two lines or the full Triple Line.

It will pay you to investigate *right now*—write, wire or 'phone for full details.

AIRTEMP DIVISION OF
CHRYSLER CORPORATION, Dayton 1, Ohio
In Canada: Therm-O-Rite Products, Ltd., Toronto

Automatically Yours

CHRYSLER AIRTEMP
DIVISION OF CHRYSLER CORPORATION

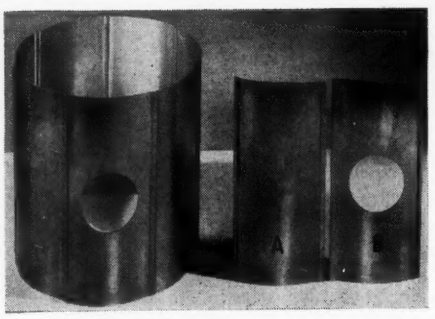
PRODUCT OF
CHRYSLER CORPORATION
ENGINEERING SKILL

addition, the models have low head-room and low water line requirements.

The all steel welded units are designed to bring power plant efficiency to low pressure heating applications, with 3″ and 2″ standard tubes, and all parts, including tubes, accessible for cleaning or repair without dismantling.

Gregory Combustion Chamber Stainless Steel, Adjustable

J. G. GREGORY CO., Chicago 1, Ill., announces an adjustable combustion chamber, made of stainless steel, containing a



high chromium alloy capable of withstanding high temperatures without distortion. Interlocking panels, 6½″ x 14½″ can be assembled to fit round, square or rectangular fireboxes. Two types of panels are furnished, "A" panels of standard size and shape, "B" panels with 4″, 5″ or 6″ knockouts for burner nozzle. Combustion chamber for a 1.65 gph installation weighs approximately 3 lbs. Features claimed for the chamber are elimination of starting noise, heat reflection, no breakage in shipping and handling and ability of mirror-like finish to shed carbon and soot.

Fruehauf Offers Truck Tanks For Delivery of Fueloil

STREAMLINED truck tanks for fueloil delivery being built by Fruehauf Trailer Co., Detroit, Mich., are furnished in capacities from 500 to 3000 gals. Tanks are

of high tensile steel construction, designed to fit all popular make trucks. A smoothly contoured outer shell without bands, all-steel adjustable mounting sill and large cabinets for drums and packaged goods are features. Cabinet doors are equipped with piano-type hinges and all standard accessories can be furnished.

High Temperature Steel Used In Jaeger Flame Spreader

HEAVY GAUGE, high temperature steel is used in the manufacture of the Jaeger flame spreader, a product of H. W. Stark & Co., Detroit 21, Mich. A number of installations during the past two years have demonstrated increased efficiencies and fuel savings, according to the manufacturer. The firebox baffle is simple to install in round or square boilers, since it rests on the walls of the combustion chamber on three sturdy legs, which can be bent to accommodate chambers of different sizes. The flame spreader heats instantly and cools almost as quickly, preventing carbon formations and preventing the nozzle from being exposed to cooking by radiant heat. In addition, it helps

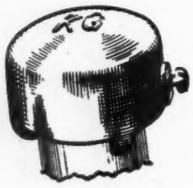
Easier to Install!
Safe for Pressure Filling!
The NEW, Guaranteed
K-G Leak-Proof
TANK GAUGE

K-G Gauges have a new indicator cap that can be installed with the fingertips.

K-G Gauges can be installed in full or empty tanks. They are visible from all angles.

K-G Gauges are furnished with 1½" or 2" thread without extra cost.

Red Marking Here Shows Time to Refill



SLIP-ON VENT CAPS
CAST ALUMINUM
Simply slip onto pipe and lock with screw. No thread is required. Has a fine rust-proof screen.

Jobber Inquiries Invited. Dep't. 51
EXPORT DEP'T.: 44 WHITEHALL ST., N. Y., U.S.A.

PEMCO
PETROLEUM EQUIPMENT MFG. CO.
75 BREWSTER ST., NEW HAVEN

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HONEYWELL
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WITH
WINDOW DISPLAY
NOW AVAILABLE TO DEALERS

HERE'S WHAT YOU GET

• MODERNISTIC ILLUMINATED WINDOW DISPLAY WITH "LIVE" CHRONOTHERM & TRANSFORMER. • FLASHER BULB • WINDOW STREAMER • PRESENTATION BOOK • COUNTER CARD • CHRONOTHERM DECAL • SAMPLE LITERATURE, BLOTTERS, STICKERS, SALES LETTER, & ORDER FORM

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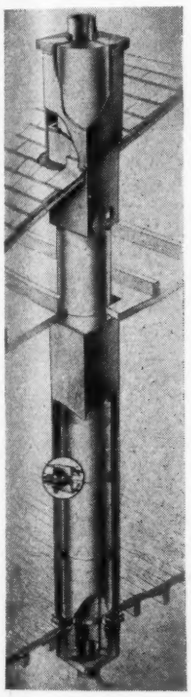
Shipped from Minn. or N. Y.

ATLANTIC BURNER SUPPLY CO., INC.
100 ST. & ATLANTIC AVE.
OZONE PARK, N. Y.

to dissipate the heavy ends of cracked oils, diverts hot gases to side walls of the combustion chamber and aids in the reduction of stack temperatures. Jaeger flame spreaders are designed for use in the average home, but are not recommended in installations consuming more than 3 gph.

Van-Packer Tile Chimney Carries Underwriters Listing

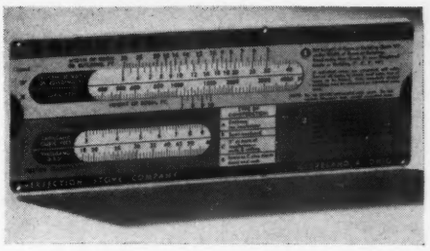
A NEW ALL FUEL, pre-cast, sectional chimney has been announced by Van-Packer Chimney Co., Chicago 3, Ill. It was subjected to rigid Underwriters Laboratories' tests for high flue temperatures, structural overload, freezing and thawing, heat shock, smoke leakage, acid corrosion, mishandling and permanence and was approved for use in dwellings not more than two stories in height. Underwriters further provides that the flue is to be encased in 3/8" plasterboard when installed through living space and that there must be a minimum clearance from combustible material of 2".



The chimney is made of 7" diameter high temperature, acid-proof tile lining, with a 3" wall of lightweight insulating cement, steel reinforced. Housing above the roof provides for automatically counter flashing to the roof and the cap affords attic ventilation. It is light enough to be suspended from floor or ceiling and is manufactured to house dimensions, and shipped complete with all accessories and instructions for installation. Joints in the chimney are permanently bonded with acid-proof cement and sections clamped together with heavy brass tension clamps. A decorative roof housing is furnished to harmonize with house construction.

Superfex Btu Calculator Estimates Dwelling Heat Loss

FURNACE SALES DEPT., Perfection Stove Co., Cleveland, Ohio, has made available



to its dealers a calculator for rapidly estimating total heat loss of the average dwelling. Based on the Superfex quick calculating chart, developed 12 years ago, the Superfex Btu Calculator considers length, width and height of the room or dwelling, type of construction and outside design temperature, to quickly establish heat loss requirements and enable selection of the proper size heating system.

Line Of Steel Boiler Units Announced by Instant Heat

CHALCOS-INSTANT HEAT steel house heating boiler units have been announced by Instant Heat Oil Burner Corp., Brooklyn 14, N. Y. Four sizes of the three pass, wet base Scotch Marine design boilers

GET THE BENEFIT OF 18 YEARS EXPERIENCE

ACME—THE OIL BURNER WITH THE TURBOSTAT HEAD

ACME HEAT & POWER, INC.

318 TEN EYCK STREET

BROOKLYN 6, NEW YORK

are offered, ranging in size from 400 to 900 sq. ft. steam and 640 to 1440 sq. ft. hot water, net ratings. Combustion chamber extends the full length of the boiler shell, and heavy tubes measure 3″ inside diameter, .25″ thick. Domestic hot water is furnished from a built-in submerged copper heating coil, with which either tank or tankless operation is possible. Jackets, constructed of heavy gauge steel and finished in a green, baked enamel, enclose both boiler and burner.

Measurements of the boiler range from 44″ high for the smallest model to 45½″ for the largest, width from 21″ to 25½″, length 29½″, 39½″, 41″ and 51″ for each of the four sizes.

R & I Combustion Chamber Features Pre-Cast Floor

A COMBUSTION CHAMBER, announced recently by Refractory & Insulation Corp., New York, N. Y., is equipped with a precast floor of the same refractory as the rest of the chamber, with grooves into which the sides fit and lock into place with bonding clips. The chamber measures 14″ high inside and 15½″ high on the outside. This chamber, which is shipped complete in a cardboard carton, can be used on jobs burning from 1 to 1.65 gph. Extension pieces are available for larger installations. Chamber can be installed with concrete or any kind of filling material around the base.

Venturi Chimney Caps Prevent Down Drafts

VENTURI CHIMNEY CAPS, consisting of an inner and an outer unit, are being distributed by William J. Metzger Co., Kalamazoo, Mich. Made of hard burnt fire clay in an octagon pattern, the caps can be adapted easily to any chimney. Specially constructed air channels create a vacuum and result in a greater velocity of draft in the chimney, tend to eliminate smoke and do away with the necessity for chimneys to extend over the ridge of the roof, except to conform with fire regulations and codes.

Three sizes accommodate chimneys of all dimensions from 8″ x 8″ to 13″ x 13″, adaptable to old or new installations. The area between the inner and outer cones has been designed to divert 80% of rain, sleet and snow from the chimney proper.

Sid Harvey, Inc. Again Offers Transformer Replace. Package

A PACKAGE, introduced by Sid Harvey, Inc., Valley Stream, N. Y. and which had to be withdrawn during the war due to transformer shortages, is again offered. The first transformer replacement package, offered in 1941, consisted of three transformers and twelve interchangeable bases to provide exact replacements on 169 models of oilburners. The package offered today will accommodate 507 burner models with only two transformers and three bases. This simplification, explains the company, means that despite the increase in price of transformers since 1941, the cost of a coverage three times as much is actually less.

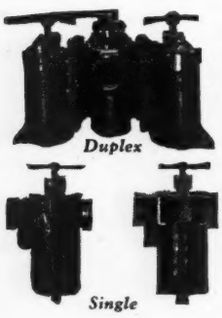
Heat Hustler Is Fan Booster For Gravity Warm Air Systems

HEAT HUSTLER units consist of a sheet-metal cabinet, suspended from floor joists by four iron rods, insulated with cork to prevent noise being transmitted upstairs, and are attached to the warm air duct leading to the hard-to-heat rooms. Inside

KRAISSL
FILTERS
STRAINERS
PUMPS
Keep Fuel Oil Lines Open and Active

Year-in, year-out performance proves the skill of KRAISSL engineering design and the honesty of KRAISSL manufacture.

Class 72 Strainers and Filters



Single and Duplex types for suction or discharge service — any practical degree of filtration in units designed for low pressures as well as up to 500 lbs. hydrostatic test—easily removable filter basket insures quick cleaning.

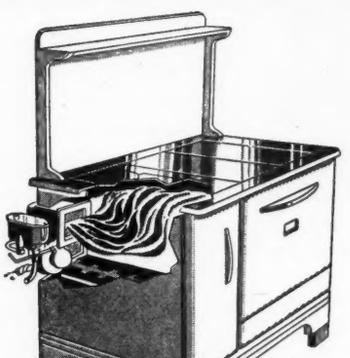
Class 60 Heavy Oil Pumps

Standard equipment wherever independent pump and motor sets or booster pumps for pump-type burners are required.

Submit your fuel-line problems to KRAISSL engineers—literature and prices on request.

295 WILLIAMS AVE.
THE KRAISSL COMPANY
HACKENSACK, N. J.

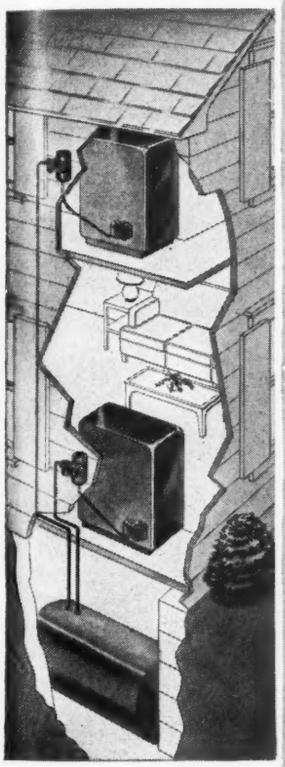
Profits!
Through the
SUPER-THERM
Combination
OIL BURNER



SALES prospects for this modernizing, easily installed oil burner are *all* owners of gas, wood and coal stoves and ranges. Super-Therm fits any size stove, front or rear —will last a lifetime—will not soot or smoke—has automatic safety features. Write now for details and *dealer profit* facts.

THERM OIL BURNER CO.
Pioneers of the Oil Burning Industry
2105A Westlake Avenue
SEATTLE 1, WASHINGTON

For Quick Fall Sales

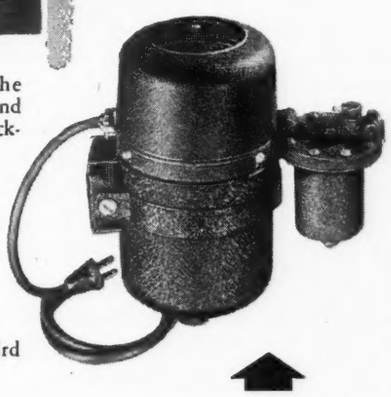


. . . INSTALL (AP) OILIFTER IN ALL VAPORIZING TYPE OIL HEATERS

Moves Oil from Basement to Burner Automatically

- Ends Oil Handling in the home.
- Eliminates need for fuel tank on appliance.
- Saves Time and Oil on *ANY* Vaporizing Oil Burning Heater, Furnace, or Range.
- Lifts Oil 25 feet high or 100 feet horizontally from bulk storage tank to appliance.
- Easy to Install — Only Single ¼" copper tubing required. No return line.
- Capacity, 1¼ Gallons per hour, sufficient for more than one appliance.
- *PAYS FOR ITSELF IN LABOR-SAVING, FUEL-SAVING, MORE CONVENIENT HEATING.*

Your customer starts the OILIFTER in the Fall—and forgets all about messy "bucketing" of oil between bulk tank and heater. No more oil carrying, no spilling waste of oil, no dripping on floors or rugs. The A-P OILIFTER does this task AUTOMATICALLY, from basement or outdoor tank to first, second, even third floors.



A-P OILIFTER with Filter Unit. Can be installed on ANY vaporizing burner appliance requiring oil flow up to 1¼ gallons per hour.

• • •

FOR: HOMES • TOURIST CAMPS • STORES • SCHOOLS • GARAGES • CHURCHES • HALLS

Sell the A-P OILIFTER to your old customers — and as extra equipment on new heater sales! You'll build greater enthusiasm for oil heating, increased satisfaction and good will — and greater profits. Send today for sales bulletins and full information.

AUTOMATIC PRODUCTS COMPANY

2458 North Thirty-Second Street • Milwaukee 10, Wisconsin

(AP) DEPENDABLE *Oil Controls*

DESIGNED TO ELIMINATE SERVICING

NATURALLY, a reliable dealer wants to do business with a reliable manufacturer, and vice versa. Catskill Metal Works, Inc., backed by over 100 years of quality manufacturing, offers an unsurpassed line of heating and hot water making equipment. Catskill makes available to you generous dealer helps to assist you in getting full profit possibilities with a complete outstanding quality line of automatic heating equipment.

OIL	STOKERS
Boiler-Burner Units	Boiler-Stoker Units
Conversion Burners	Bin Feed Stokers
Hot Water Makers	Ash Removal Stokers
	Hot Water Makers

Backed By Over 100 Years of Quality Manufacturing

CATSKILL AUTOMATIC HEATING

CATSKILL METAL WORKS, INC., CATSKILL, N.Y.

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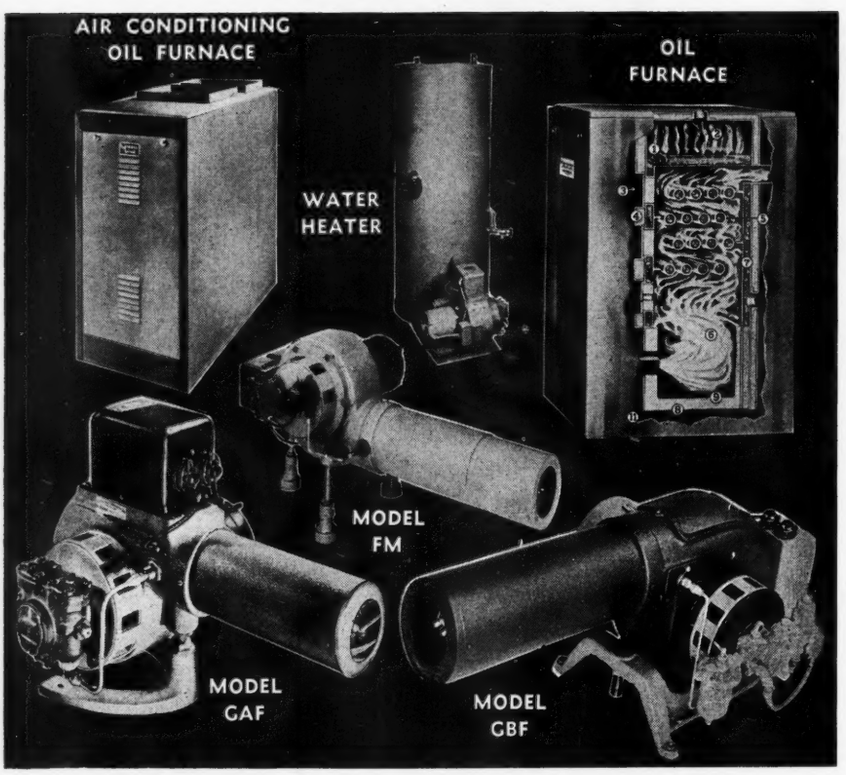
AMERICA'S MOST COMPLETE FAMILY OF OIL HEAT EQUIPMENT



A BURNER FOR EVERY NEED
From 1 to 20 Gallon Capacity

GAF CONVERSION BURNER
Rating 1 to 3 GPH. Precision machined. Carefully assembled. Thoroughly tested. Designed for high flame efficiency. A True quality oil burner attested by thousands of installations over the many years of superb performance. Has proven its dependability as a foundation upon which oil burner dealers can establish a sound, lasting business.

GBF SINGLE IGNITION COMMERCIAL BURNER
3½ to 8 GPH Duel Atomizer head divides the oil stream for finer atomization. Ruggedly built for long trouble free performance. Fuel unit consists of self-cleaning filter, internal Rotary gear pump and pressure regulating and atomizer cut-off valve. Full length Nitroly steel electrodes, unaffected by combustion heat. Designed for high flame efficiency of 10 to 12% CO_2.

FM DUAL IGNITION COMMERCIAL BURNER
Three sizes ranging from 8 to 20 GPH. Ignition employs two 10,000 volt transformers with two separate sets of electrodes assuring positive ignition. ½ H.P. motor, capacitor start. Dual atomizer head.

T SERIES STEEL WATER TUBE FURNACE UNIT
A.S.M.E. Standard, three sizes. Built in tank or tankless water heater coils. ¼" steel, flange quality. Extra heavy water tubes welded in, assuring leak proof construction. Sealed combustion chamber. Quick circulation. Insulated with glass wool.

WINTER AIR CONDITIONER
Three popular sizes. Quality construction of 10 gauge steel for long life. Insulated with glass wool. Large size fan. High efficiency. Housed in beautiful jacket fabricated of Automobile Quality Steel.

P 50 WATER HEATER
Fired by pressure atomizing burner for commercial applications. Constructed of 10 gauge copper bearing steel with extra heavy fire tubes welded in to make thm positively leak proof. Entire unit hot dipped galvanized. Built as a unit. Shipped as a package for easy installation. Requires 4½ sq. ft. floor space.

GENERAL Automatic

CHECKS FIRST . . . with the finest

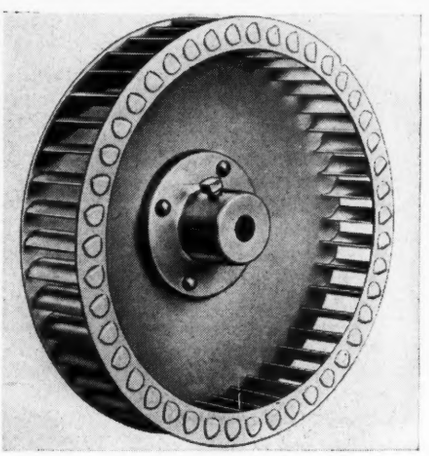
GENERAL OIL BURNER CORPORATION
2300 Sinclair Lane, Baltimore 13, Md.

the cabinet are a back pressure damper and a rotary centrifugal blower. Fan motor is located outside the cabinet, and operation can be controlled by a thermostat or manually. The units can be installed on new or existing installations.

Size 500 is adaptable to 8", 9" and 10" pipe, with a 1200 size for 12" and 14" warm air pipe. Models can be furnished with horizontal inlet and vertical discharge, horizontal inlet and horizontal discharge and with by-pass. Manufacturer is Climate Maker Heat Hustler Co., Bloomington, Ill.

Revcor Steel Blower Wheels Available Now In Five Diameters

STEEL BLOWER WHEELS, fabricated by a new method of construction, have been announced by Revcor (not Inc.), Chicago 24, Ill. The wheels, developed for



oilburner and air conditioning applications, can be made also of brass or aluminum. The use of a large number of thin gauge, full width blades of a curvature and depth to provide maximum air contact for each diameter wheel, are said to result in increased air output for space dimensions and horsepower required. Blade tips are expanded and rigidly locked in the slots of the inlet ring and back plate by a specially developed machine without the use of rivets. The hub of each balanced wheel is riveted to the back plate.

Diameters now available are 5 in., 6 in., 7 in., 8 in., and 9 in., in 1 in. to 6 in. widths. Later deliveries are planned for sizes up to 15 in. diameter.

Hammel Radiator Announces Karol Air Even Pull Vent Cap

DESIGNED TO eliminate the necessity for installing vent pipes above the roof line,

Hammel Radiator Eng. Co., Los Angeles, Calif., announces a new patented vent cap, to be known as the Karol Air Even Pull. The cap can be set nearly flush with the roof and maintain even draft, regardless of unusual conditions or high velocity winds. Production has commenced on the unit and deliveries are expected to be made shortly. The cap has been tested by the Board of Building and Safety, Los Angeles, and has been approved and adopted by the building code.

Buddie Range Burner Wicks Furnished To Fit All Burners

RANGE BURNER WICKS, equipped with double brass clips, are announced by Buddie Products Co., Greenfield, Mass. The clips raise the wick from the base of the burner allowing an air space to burn off carbon, and, further, permit the wick to be used on one side and then reversed to offer a new surface. Faster lighting, easier cleaning, longer life, and carbon elimination are claimed for this feature.

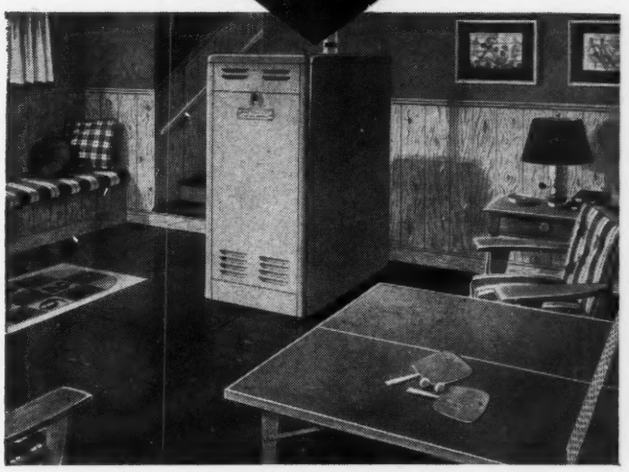
The wicks are made of 7/8" by 1/6" asbestos with two wire strands running through the center to hold them upright and away from the sides of the burner base, and will fit all burners.

Degree Day Calculator Figures K Factors Easily

ROLL RULE degree day calculator, announced by Rue Mfg. Co., Philadelphia 30, Pa., computes "K" factors and degree day deliveries easily and quickly, according to its manufacturer. The compact unit is portable, weighing 7 lbs., and fits on a desk top, accessible for use. With instructions for operating that are furnished with

KOVEN
WATERFILM BOILERS

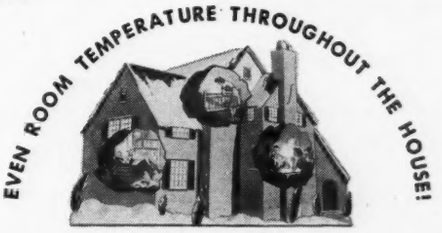
FOR ECONOMICAL QUICK HEAT!



COMPARATIVE shopping reveals one thing to your customers... the heating unit that answers every need is the rapid-steaming KOVEN WATERFILM BOILER. Its patented construction incorporates all the latest scientific improvements... provides dependable service at a low operating cost.

WATERFILM insures quick heat and even temperatures in every room, *plus* a plentiful supply of domestic hot water at all times. For automatic firing with oil, stoker or gas the WATERFILM BOILER is efficient and economical.

Attractively jacketed KOVEN WATERFILM BOILERS are made in a variety of models adaptable to homes, apartment houses or industrial plants. Write for a copy of the free illustrated booklet.

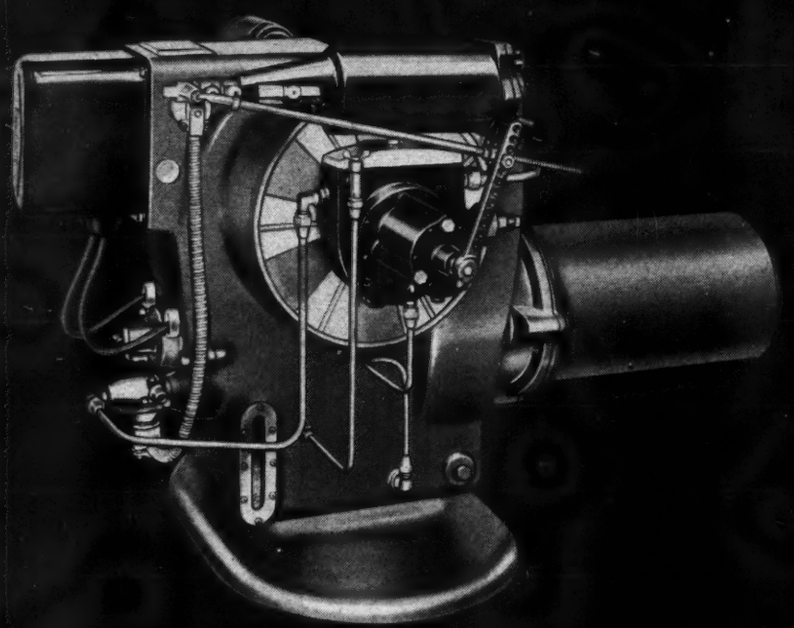


WATERFILM BOILERS, Inc.

154 Ogden Avenue, Jersey City 7, N. J.

Listen to the WATERFILM Broadcast "Vaudeville Isn't Dead" Mon., Wed., Fri. at 7:45 P.M. and Sun. at 12:15 P.M. Station WNEW

Cleaver-Brooks
HEV-E-OIL BURNER



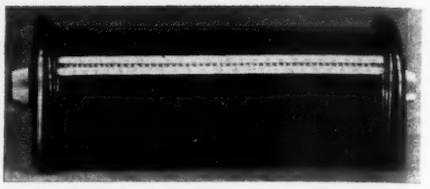
FEATURES

- Burns low-cost zero-test No. 5 oil.
- Burns catalytic oils.
- Automatic Electric Ignition.
- Flame Modulation.
- Low Fire Start.
- Automatic Pressure lubrication.
- Nozzle oil shut-off valve.
- High Combustion Efficiency.
- Built by pioneers in oil-fired steam generators, who have the know-how of high-efficiency oil combustion.
- Available in sizes for immediate delivery for home, commercial and industrial use.

Profitable franchises to reliable established dealers.

HEV-E-OIL BURNER DIVISION • CLEAVER-BROOKS COMPANY

363 East Keefe Avenue, Milwaukee 12, Wisconsin



each calculator, it is said that the system can be self-taught almost immediately.

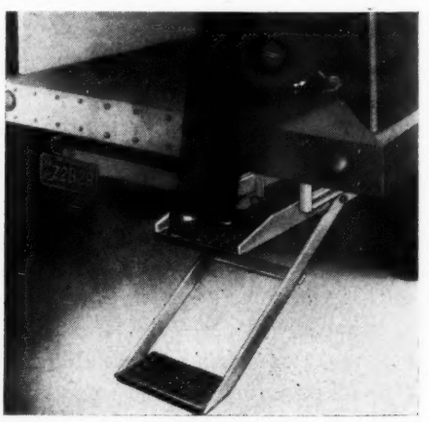
Knobs at either end of the calculator bring into position tables that register degree-days and fuel consumption, resulting in a "K" factor reading in the center of the instrument. No other figuring or computations are necessary.

Soot and Carbon Remover By Brooks Boiler Treatment Co.

SUPER-X, soot and carbon remover, made by Brooks Boiler Treatment Co., Cleveland 4, Ohio, contains no acids or ingredients known to be injurious to boiler metal and is a dry, crystalline material. The remover cleans the fire side of the boiler, flues, fire brick, and chimney by bringing about such chemical changes in soot that it ignites at a lower temperature and burns more readily. Super-X lowers the ignition point of soot from approximately 1100° to 500°. When scattered over a hot fire, it creates an oxygen vapor that reduces soot, and carbon accumulations to a powdery ash which are carried away with the draft. Instructions for use recommend 1 lb. of Super-X for each 50 hp boiler rating.

Extendo No Break Truck Step

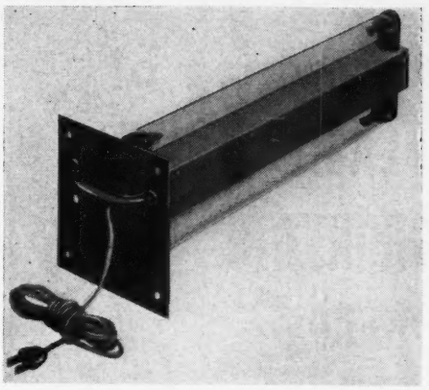
EXTENDO CORP., Los Angeles 27, Cal., manufactures the Extendo No Break truck step, whose outstanding feature is its ability to slide back into its frame or rack if the truck is backed accidentally



into a wall or other obstacle. It is secured to the truck by four bolts and is claimed to be the answer to lost time and injuries suffered from broken truck steps.

Sterilator Unit Employs G-E Germicidal Lamp

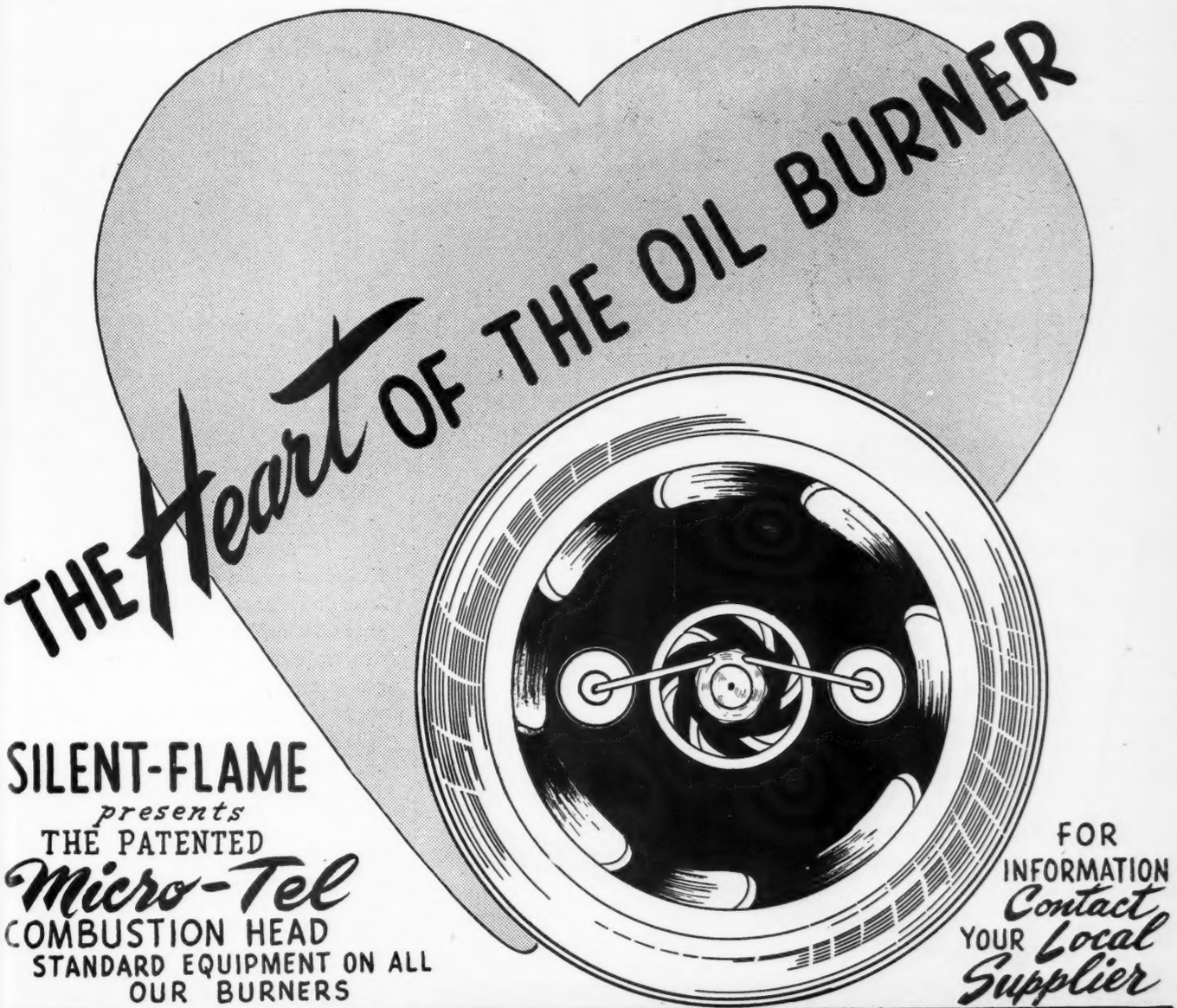
STERILATOR, germ killing unit, designed for installation in home air conditioning or ventilating ducts, is offered by Domestic Devices, Cleveland, Ohio. The unit incorporates the G-E germicidal lamp, a development in the use of the ultra-violet ray as a germ killing medium. Easily installed in the heating and air conditioning



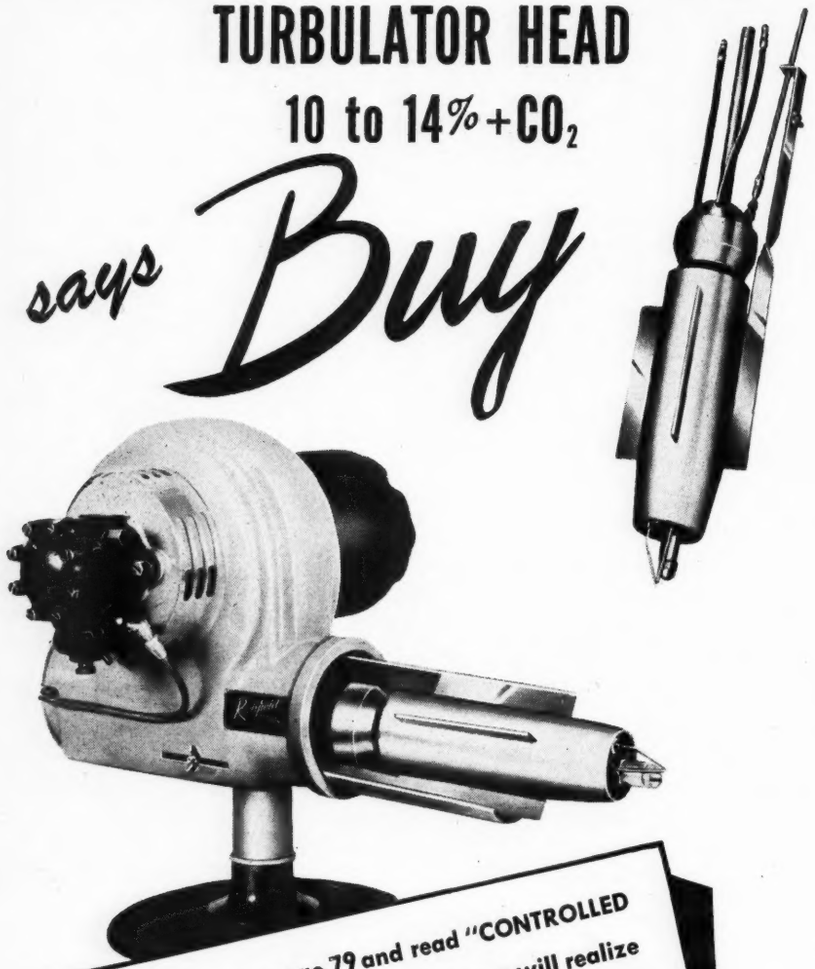
system within the house, Sterilators require no special wiring or brackets, and are said to kill 95% of the germs in the dust-laden cold air drawn through the vents and before it passes through the heating system. The fixture deodorizes as well as disinfects. Installation in the air duct eliminates direct contact with powerful ultra-violet rays, which can be harmful to eyes, skin and fabrics.

Andrews Oilfired Furnaces Provide Winter Conditioning

SERIES A oilfired furnaces are designed by Andrews Heating Co., Minneapolis, Minn., to provide complete winter air conditioning in domestic installations. The company concentrates on giant sizes



the field performance of
THE *Richfield* FLAME CONTROL
TURBULATOR HEAD
10 to 14%+CO_2
says *Buy*



Now please turn to page 79 and read "CONTROLLED AIR DELIVERY—THE ANSWER" and you will realize that unless the burners you are now selling, show when installed, from 10 to 14%+CO_2 they are just out of date—as out of date as Jack Benny's old Maxwell.

•

FOR AVAILABLE FRANCHISES

We will be glad to hear from live dealers small or large. Just address us on your own stationery and your inquiry will have our immediate attention.

GEORGE BERNHARD, Pres.

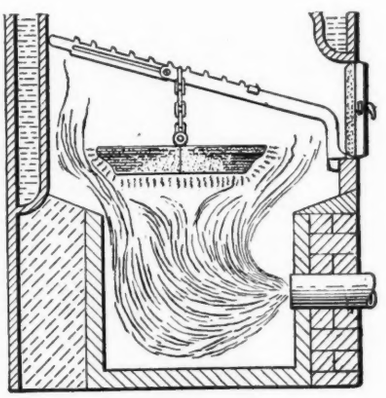
RICHFIELD MANUFACTURING CORPORATION
21 West 19th Street, New York 11, N. Y.
Telephone CHelsea 3-1420
Thousands in use Established 1936

of furnaces for industrial applications of all kinds, but offers four models of Series A furnaces for domestic use. Models ALR and AHR are equipped with ring and hearth plates set on brackets bolted to the steel heating element to permit installation of any standard type rotary oilburner. Provision for air supply is made by special open lower door frame.

Models ALO and AHO are designed for installation of any standard gun type oilburner and are equipped with special doors and lower plate, through which the burner tube is inserted. In all models mineral wool insulates the space between front casting and front inner heating element lining and the upper and lower doors.

Iron-Hide Baffle and Adjustable Support

A FIREBOX BAFFLE, available in five diameters from 12" to 20", is hinged so that



it can be folded to slide through the boiler feed door. Iron-Hide baffles come complete with high test chain and are designed to hang from pipe nipple or grate bar that has been placed in the center opening of the crown sheet. If the design of the boiler lacks a center hanging point, the Iron-Hide adjustable baffle support is installed. The support fits all door frames and rests on the rear fire wall of any boiler. In a warm air furnace the support is placed end up in radiator. Baffles and supports are made by Iron-Hide Refractory Products, Matawan, N. J.

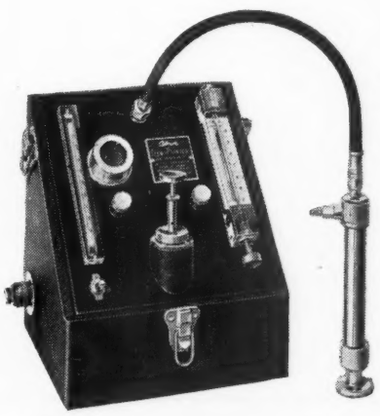
Moguloid Colloidal Seal Stops Boiler, Radiator, Pipe Leaks

MOGULOID, chrome and copper colloidal, stops leaks in radiators, piping, valves, boilers and hot water heaters, by sealing

with a metal bond from the outside into the thickness of the parent metal. Metallizing Co. of American, Chicago 7, Ill., offers the compound, which is added directly to the water in the heating system and the heat turned up to normal operating level. Tests, says the manufacturer, have proven that a Moguloid repair withstands pressures up to 2100 lbs. and heat up to the distortion point of the casting itself. One quart is recommended for each 100 gals. of water in the heating system.

Alnor Instrument Provides Dew Point Measurement

ALNOR DEWPOINTER, a new instrument by Illinois Testing Laboratories, Inc., offers



quick and accurate measurement of humidity. The instrument eliminates external coolants and the dew point or fog is observed suspended in air and not on a polished surface. Available in two ranges, models are designed for dew point determination between minus 20° F. and room temperature and from minus 100° to 0° F. Accurate readings, says the manufacturer, are taken quickly after only a short period of practice.

Speedway Bench Grinder Is Portable and Light

NO. 117 portable bench grinder, manufactured by Speedway Mfg. Co., Cicero, Ill., weighs 7½ lbs. and plugs into any 115 v. circuit for instant operation. Motor rating is 1/5 hp., 3400 rpm. Grinding wheels, one coarse and one fine, measure 4½" x ⅜" x ⅜", while the entire unit is 8" long and 6" high. Light grinding, sharpening, surfacing, deburring and buffing are suggested uses. Blue crackle finish, built-in thumb switch and rubber feet to prevent marring surfaces feature the units.

New H. C. LITTLE "Thermatic" Burner Door

Solves Problem of Establishing Draft Under Cold Starting Conditions

H. C. Little has made a new addition to their automatic oil burner. This added feature is so very important that it will be a big additional sales asset to every H. C. Little dealer.

This new feature, descriptively named a "THERMATIC" door, will hereafter be included on all H. C. Little oil burners. Operating automatically and controlled by temperature changes, the new "THERMATIC" door gives the H. C. Little oil burner amazingly good starting characteristics, even under the most adverse cold starting conditions.

FANS AND BLOWERS NOT NECESSARY

The H. C. Little "THERMATIC" door easily and efficiently solves the cold starting problem *automatically* by permitting a relatively large amount of air to enter the burner while it is cold, then gradually reducing the air intake to normal as the burner warms up. NO motor-driven fan or blower is employed.

AMPLY TESTED BEFORE INTRODUCTION

Before the actual introduction of the "THERMATIC" door, numerous laboratory and field tests were made. These conclusively showed that the H. C. Little "THERMATIC" door definitely solves the problem of establishing draft under cold starting conditions without the use of complicated motor-driven mechanisms and with the further assurance that this new feature will not require any attention, even over very long periods of time.

For further information, contact your nearest H. C. Little Distributor, or write to:

H.C.Little BURNER CO.

San Rafael, California

BRANCHES IN 18 PRINCIPAL CITIES

Fueloil Ration Data

(*Continued from page 88*)

	R-1100 Central		R-1100 Space	
	Number Issued	*Average Gallons*	*Number Issued*	*Average Gallons*
Fargo District				
Becker	137	1586.9	528	563.6
Clay	764	1055.5	531	570.0
Clearwater	6	390.0	180	620.1
Douglas	196	1460.2	1,571	638.1
Grant	74	1113.0	728	283.8
Hubbard	22	1440.9	256	596.5
Kittson	32	1162.8	452	637.9
Mahnomen	34	716.8	173	463.8
Marshall	79	1409.6	456	627.4
Norman	79	1091.8	410	598.2
Otter Tail	432	1489.8	1,751	613.6
Pennington	119	1292.0	410	459.7
Polk	245	1108.1	1,201	593.0
Red Lake	20	1157.5	279	586.0
Roseau	16	1606.3	185	515.3
Traverse	81	1235.1	508	626.2
Wadena	56	1329.3	266	586.0
Wilkin	91	1265.9	778	662.6
Stoux Falls District				
Big Stone	76	1338.2	583	598.7
Lac qui Parle	127	1214.6	1,151	535.4
Lincoln	69	1139.1	676	588.3
Lyon	679	1189.2	1,628	668.4
Murray	57	1253.9	1,091	594.2
Nobles	325	418.0	777	543.7
Pipestone	443	1177.3	908	620.3
Rock	343	1057.6	773	609.1
Yellow Medicine	189	1304.8	729	569.2
La Crosse District				
Fillmore	333	1334.5	1,648	602.6
Houston	158	1378.5	710	553.1
Olmsted	598	1626.3	1,257	652.4
Wabasha	178	1527.4	726	570.4
Winona	1,330	1355.8	1,325	528.6
MINNESOTA TOTAL	71,009	1359.4	116,641	604.2
MISSOURI				
Kansas City District				
Andrew	98	1441.3	467	528.5
Atchison	143	1341.2	724	490.6
Barry	34	1212.9	320	406.5
Barton	17	1167.1	220	363.4
Bates	35	1002.9	113	309.1
Benton	3	1115.0	62	354.6
Buchanan	768	1684.8	1,478	395.2
Caldwell	19	1481.6	143	415.6
Carroll	14	1435.7	48	410.9
Cass	27	1370.7	166	442.3
Cedar	5	890.0	186	281.4
Christian	12	1033.8	152	375.1
Clay	228	1165.5	938	326.3
Clinton	65	1548.3	140	437.9
Dade	12	1375.0	126	445.0
Dallas	2	1700.0	73	260.8
Daviess	20	1523.0	219	384.7
DeKalb	29	1216.9	172	370.7
Gentry	56	1310.7	320	553.8
Greene	563	1230.4	3,011	356.2
Grundy	71	1709.9	150	509.0
Harrison	45	1563.3	322	525.9
Henry	20	1317.0	67	415.8
Hickory	..	..	40	394.9
Holt	65	1417.7	423	516.9
Jackson	1,153	1475.7	5,564	358.4
Jasper	340	1186.7	1,224	385.5
Johnson	2	500.0	215	284.8
Lafayette	14	1458.9	237	290.7
Lawrence	28	1019.3	399	316.0
Linn	31	1138.1	149	255.0
Livingston	45	1285.8	82	467.8
McDonald	21	1155.2	192	361.9
Mercer	1	200.0	46	535.0
Newton	143	876.9	689	353.8
Nodaway	20	1666.3	139	454.5
Pettis	8	1733.8	465	191.4

FROM THE MALE OF THE MONTH
ROTOFLAME
Dear John,
Sorry to hear that you're sick, but I've been sort of sick myself. No tanks, no pipes, no fittings, no fun. Work! Work! Work! The missus says I should or married a ROTOFLAME oil burner. Well, maybe I should of, 'cause it's real pretty.
I've just finished installing the new ROTOFLAME boiler-burner unit. Brother, it works swell! A stainless steel chamber, built-in tankless and extended jacket, make it a swell installation— and steam in a few minutes. Speaking of steamin', I've been steamin' at Peabody again. She's always selling stuff to her friends, particularly stuff I haven't got.
I should make my slogan "Every dame needs a flame—it's ROTOFLAME". How do you like it?
EDITOR'S NOTE: LOUSY
Your faithful representative,
Earl Heeter
Specialist in Oil Burner Repairs
Exclusive territories available for well-established dealers
OIL EQUIPMENT LABORATORIES, Inc.
ELIZABETH 4 NEW JERSEY

5 MINUTES TO INSTALL
8% to 15% Oil Saving
if you install
MYKA-DISK AND DISK-ARM (Pat. Appl. For)
SPEEDS UP HEATING. Lowers Stack Temperature. Permits higher CO_2 readings. Decreases Formation of Soot. Lowers Combustion Noise, and pays its way in a few weeks. Send for
BULLETIN No. 15 (Free)
INSULATION & REFRACTORIES CO.
WILLIAMSON . . . . WAYNE COUNTY . . . . N. Y.

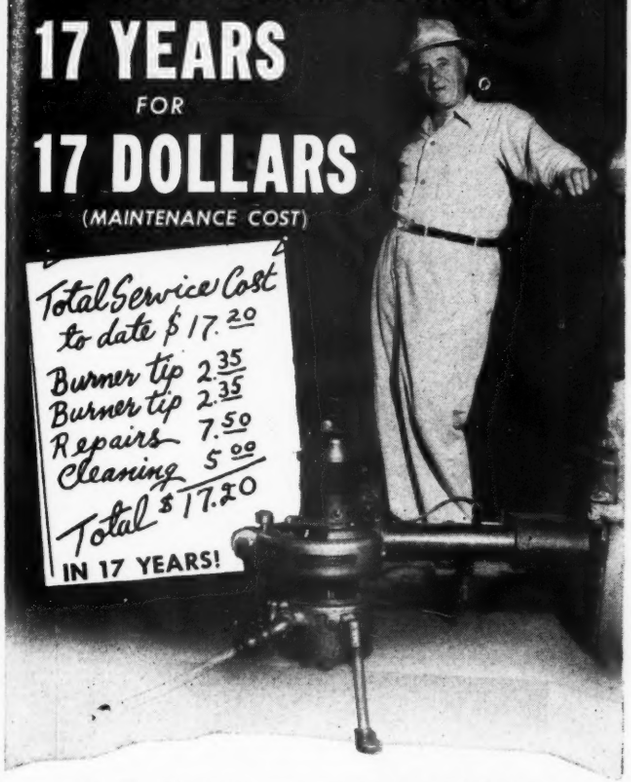
WAYNE HOME EQUIPMENT

OIL BURNER SCORES AGAIN

WITH RECORD ECONOMY

17 YEARS FOR 17 DOLLARS

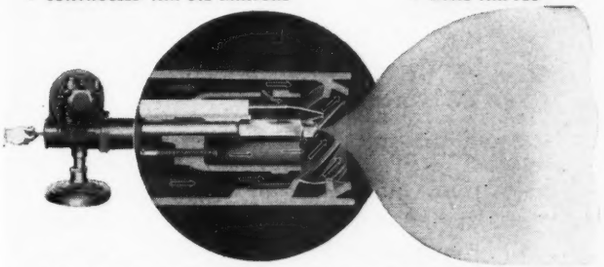
(MAINTENANCE COST)



Olo E. Nichols, vice president of Citizens Bank, Hebron, Indiana, has records of 17 years of solid satisfaction, proving Wayne oil burners give better service longer at lower cost. New Model Wayne Thermatic Burners deliver even higher efficiency. More complete combustion with less excess air means higher CO_2 ratings for even greater economy.

New WAYNE THERMATIC CONSTRUCTION!

- RIFLED FIRING HEAD
- ADJUSTABLE ELECTRODES
- GREATER COMBUSTION EFFICIENCY
- CONTROLLED AIR-OIL MIXTURE
- AUTOMATIC IGNITION
- FACTORY ADJUSTED DIFFUSER AIR PORT
- DUAL AIR-FLO



EASILY ADJUSTED FOR PERFECT MIXTURE

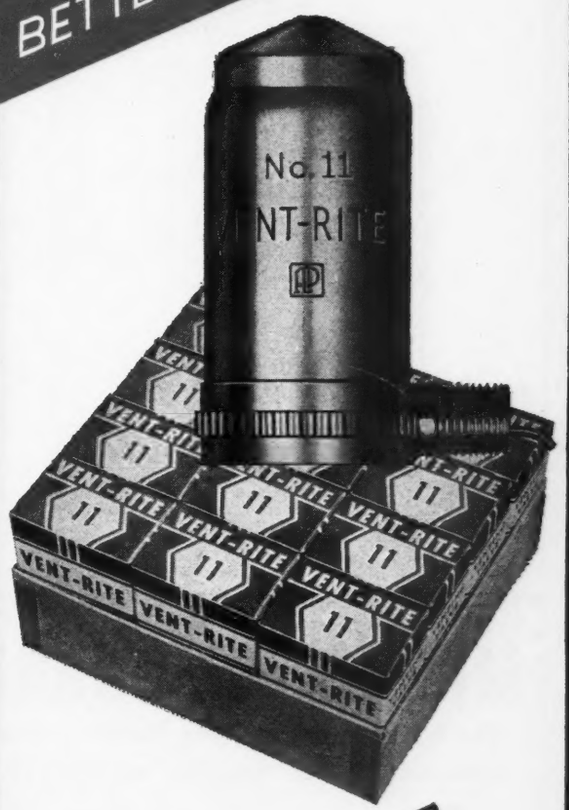
Oil Burners | Gas-Oil-Coal Furnaces | Heating Boilers | Water Systems | Water Heaters | Filters & Softeners | Gas Burners

Write for Details of the Wayne Partnership Plan

THE WAYNE HOME EQUIPMENT CO., INC.
FORT WAYNE, INDIANA

NEW! VENT-RITE

BETTER Venting Valves



ANNOUNCES . . . IMPROVED non-adjustable VENTING VALVES

ASK for Vent-Rite No. 11 for radiators, and Vent-Rite No. 35 for mains . . . for jobs that call for efficient, economical, non-adjustable valves.

Anderson Products, Incorporated
Cambridge 39, Massachusetts

	R-1100 Central		R-1100 Space	
	Number Issued	*Average Gallons*	*Number Issued*	*Average Gallons*
Platte	106	1199.0	386	377.2
Polk	30	1356.3	190	409.0
Putman	8	871.1	24	484.0
Ray	6	1358.3	89	328.5
St. Clair	10	1257.0	122	275.2
Saline	49	1401.8	172	379.0
Stone	5	818.4	126	443.2
Sullivan	5	1102.0	79	372.3
Taney	16	1545.3	177	397.6
Vernon	39	1519.2	154	328.5
Webster	8	1278.8	107	424.3
Worth	3	1550.0	121	554.6
St. Louis District				
Adair	12	1778.3	123	178.3
Audrain	33	1500.5	223	279.6
Bollinger	..	..	29	232.0
Boone	128	1140.1	105	258.0
Butler	9	1116.1	141	363.7
Callaway	22	1270.9	121	271.1
Camden	14	1190.7	29	183.9
Cape Giradeau	188	1378.4	492	275.4
Carter	8	268.8	1	420.0
Chariton	20	1420.0	164	297.3
Clark	20	1020.5	152	432.6
Cole	120	1474.2	285	153.4
Cooper	18	1504.4	72	442.1
Crawford	14	1325.7	75	326.1
Dent	20	1296.5	171	226.1
Douglas	3	1411.7	20	593.5
Dunklin	32	966.6	448	346.5
Franklin	109	1257.4	505	254.5
Gasconade	54	1233.1	269	350.9
Howard	15	1306.7	56	254.3
Howell	82	1120.0	253	239.4
Iron	15	1356.7	73	194.9
Jefferson	114	958.3	485	300.1
Knox	3	1083.3	69	412.2
Laclede	50	1525.0	410	241.3
Lewis	15	1323.3	173	466.1

	R-1100 Central		R-1100 Space	
	Number Issued	*Average Gallons*	*Number Issued*	*Average Gallons*
Lincoln	15	1644.7	195	423.2
Macon	9	1567.6	69	425.9
Madison	15	1256.5	70	347.4
Maries	3	1016.6	21	449.3
Marion	24	1837.5	214	300.0
Miller	40	639.3	86	358.9
Mississippi	52	1098.1	254	302.2
Moniteau	22	1515.9	149	507.2
Monroe	11	1827.3	41	468.3
Montgomery	7	1457.1	179	246.3
Morgan	4	1162.5	67	352.3
New Madrid	37	1030.9	387	311.2
Oregon	5	1100.0	111	350.7
Osage	4	1312.5	64	181.1
Ozark	..	..	14	525.0
Pemiscot	110	1044.7	703	374.7
Perry	16	1305.6	89	219.3
Phelps	28	972.0	300	128.7
Pike	36	1790.3	231	391.4
Pulaski	15	613.3	248	391.2
Ralls	2	1875.0	55	206.2
Randolph	13	1428.5	207	294.3
Reynolds	11	627.3	24	157.3
Ripley	1	1200.0	53	318.8
St. Charles	178	1429.3	1,288	339.1
St. Francois	20	1247.0	237	335.5
Ste. Genevieve	22	831.4	80	168.8
St. Louis	6,686	1460.3	4,466	370.9
Schuyler	3	2083.3	19	512.6
Scotland	2	1050.0	34	559.4
Scott	86	1493.3	753	317.4
Shannon	6	858.3	17	310.6
Shelby	3	1050.0	62	490.6
Stoddard	11	1200.9	170	419.0
Texas	26	1071.2	177	393.1
Warren	11	995.5	142	205.0
Washington	8	1443.8	58	264.3
Wayne	2	1125.0	77	262.9
Wright	4	307.5	58	666.1

MALCO OIL BURNER

The heavy-duty cast iron burner you have been waiting for. Shipping weight, 150 lbs.

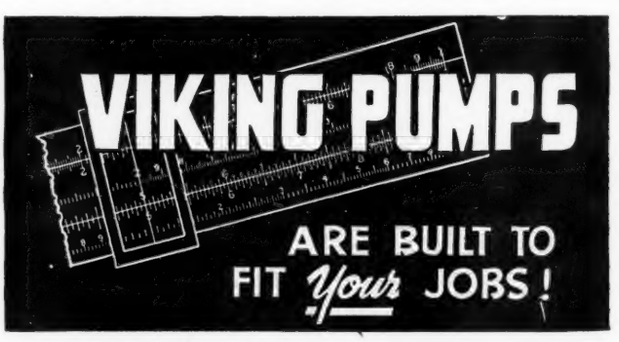
Model K-2 Pedestal or Flange Mounting

Two Models—1 to 4 g.p.h. This is a good burner, at a good price, for dealers who know oilheating.

Write, wire or phone. Exclusive Franchises available.

MALCO GEAR CO.

DOLTON, ILL.



The reason why Viking Pumps so successfully handle fuel oil is that they are built from start to finish for these jobs in the size and style YOU need.

And no matter what your application, bulk station, truck or hand dispensing, there is a Viking built for that purpose. The line is complete in models and sizes. Ruggedly built for each application.

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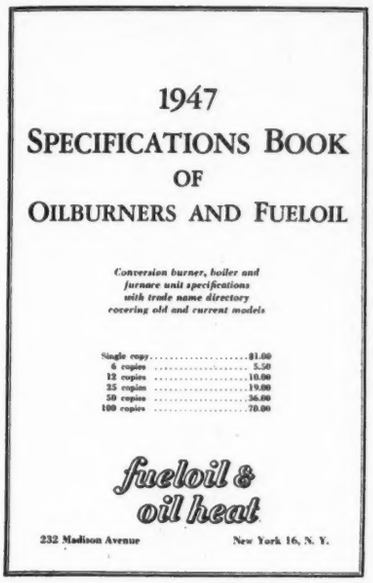
VIKING PUMP COMPANY

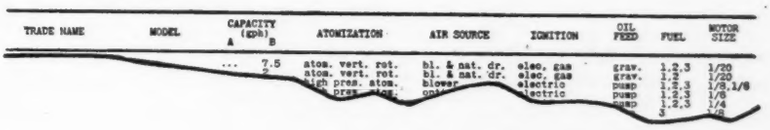
CEDAR FALLS, IOWA

You've Been Waiting For This!



A NEW EDITION is now ready for immediate delivery. The last edition of this informative book appeared in 1942, and it has been compiled now to include all specifications and data from that edition, as well as specifications on current and new models introduced since then.

Sample page heading:



HERE IS A BOOK that is valuable and essential for dealers, manufacturers, oil salesmen, service and installation men, providing the most complete and readily accessible tabulation of specifications and trade names for old and current models of conversion oilburners, boiler-burner and furnace-burner units. All data contained in the Book have been taken from questionnaires submitted by individual manufacturers.

THE BOOK is sectionalized and indexed for quick, easy reference, as follows:

Conversion Burner Section—Specifications for all types of conversion oilburners—pressure, vaporizing, rotary, etc.—are tabulated for more than 2400 models made by 559 manufacturers. Page heading shown illustrates type of information listed.

Boiler-Burner Unit Section—Gives trade names, model designations, minimum and maximum capacities in gph, type of oilburner used, whether cast-iron or steel boiler, and fuel used for more than 700 models of 174 manufacturers.

Furnace-Burner Unit Section—Furnishes data on trade names, model designations, capacities, type of oilburner, ignition and fuel used for more than 650 models listed for 191 manufacturers.

Trade Names Directory—Lists alphabetically almost 600 trade names for oilburners and units, showing company names, cities and states. It includes repeated listings from the 1942 edition, as well as current listings. Names repeated from the 1942 edition represent the best-known or last-known addresses, while listings for current models were taken from questionnaire returns.

Fueloil Specifications Section—Reproduces Commercial Standards for Fueloils, CS 12-40, effective January 5, 1940, currently being enforced. Listed for information and reference, when adopted, are changes to the Specifications as suggested by a Committee of the American Society for Testing Materials.

ORDER A SUPPLY of the 1947 SPECIFICATIONS BOOK OF OILBURNERS AND FUELOIL for your organization today. Please send check or money order with your order to facilitate bookkeeping and shipment.

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232 Madison Avenue,
New York 16, N. Y.

Send me ..... copies of "1947 Specifications Book of Oilburners and Fueloil." $..... is attached.

Name .....

Street .....

City .....State .....

	R-1100 Central Number Issued	R-1100 Central Average Gallons	R-1100 Space Number Issued	R-1100 Space Average Gallons
St. Louis (City)	5,159	1203.4	28,703	410.3
MISSOURI TOTAL	18,342	1343.2	66,686	378.3
NEBRASKA				
North Platte District				
Adams	268	1339.5	1,096	325.3
Arthur	..	..	101	605.1
Banner	4	887.5	123	574.7
Blaine	..	..	128	622.5
Box Butte	438	1329.0	1,090	585.8
Buffalo	107	1646.1	850	530.9
Chase	13	1032.3	504	523.1
Cheyenne	95	1341.8	518	555.6
Custer	109	1134.3	669	539.9
Dawes	260	1265.7	785	668.8
Dawson	22	1287.7	768	593.6
Deuel	119	1275.5	412	557.7
Dundz	32	946.3	325	508.4
Franklin	10	1310.0	179	549.4
Frontier	8	810.0	472	505.4
Furnas	9	1125.6	466	542.7
Garden	19	700.0	309	573.1
Garfield	35	1375.9	155	578.9
Gasper	13	601.5	147	628.4
Grant	27	1884.1	142	666.2
Greeley	27	1155.9	202	497.6
Hall	35	1379.6	603	491.1
Harlan	30	1275.8	246	567.9
Hayes	9	1048.9	142	496.2
Hitchcock	33	1051.2	294	465.8
Hooker	31	1237.1	194	535.9
Howard	87	1266.0	391	613.9
Kearney	9	994.4	378	536.0
Keith	66	1323.5	530	705.4
Kimball	43	1402.0	290	657.7
Lincoln	32	1369.4	963	575.6
Logan	6	1300.0	98	523.4
Loup	6	1035.0	65	668.1
McPherson	..	..	114	484.9
Morrill	4	965.0	529	483.7
Perkins	18	1137.2	418	502.3
Phelps	10	1354.0	483	666.1
Red Willow	186	1025.2	623	537.6
Scotts Bluff	280	1360.3	1,710	595.5
Sheridan	167	1293.2	661	568.5
Sherman	21	878.6	302	534.0
Sioux	23	1786.5	171	773.0
Thomas	9	1060.0	169	609.3
Valley	46	1462.2	380	540.7
Webster	34	1164.7	186	462.1
Omaha District				
Boone	93	1353.9	360	546.5
Burt	23	1582.6	641	597.5
Butter	29	1200.0	414	587.0
Cass	50	1197.0	604	548.5
Clay	19	1243.2	368	472.9
Colfax	133	1229.6	635	553.4
Cuming	99	1210.1	711	605.6
Dodge	122	1584.8	1,120	410.0
Douglas	9,103	1167.8	1,782	464.2
Fillmore	46	1205.4	478	525.2
Gage	122	1434.7	749	538.3
Hamilton	49	1231.0	344	581.9
Jefferson	79	1228.4	603	496.7
Johnson	3	1300.0	281	555.0
Lancaster	1,122	1566.7	431	401.9
Madison	576	1180.8	853	594.1
Merrick	80	1358.8	193	598.8
Nance	53	1319.5	113	599.2
Nemaha	68	1312.1	474	515.0
Neukolls	22	1245.0	359	620.8
Otoe	178	1204.3	786	552.0
Pawnee	1	1007.0	176	500.1
Platte	93	1419.1	586	567.6
Polk	11	1063.6	287	557.4
Richardson	102	1163.2	619	533.0
Saline	30	1180.3	437	556.5

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...in Appearance

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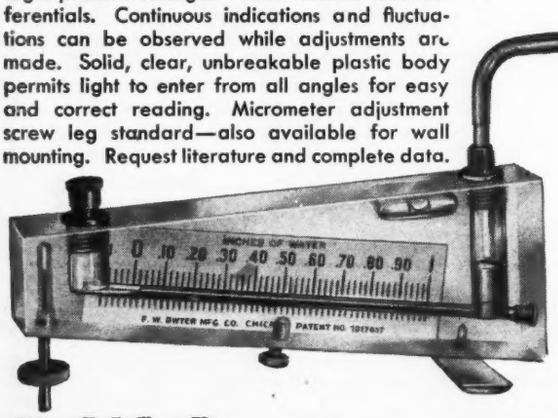
PORTABLE DRAFT GAGE

The easily operated Dwyer Draft Gage permits precision measurement of drafts, air velocities, slight pressure changes—even vacuums and differentials. Continuous indications and fluctuations can be observed while adjustments are made. Solid, clear, unbreakable plastic body permits light to enter from all angles for easy and correct reading. Micrometer adjustment screw leg standard—also available for wall mounting. Request literature and complete data.



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POORER grades of burning oils and acute labor conditions are no doubt putting a terrific strain on your ability to give proper service to your customers. Get away from these adjustments and cleaning difficulties by selling KLEEN-FLO Fuel Oil Conditioner. KLEEN-FLO helps preserve equipment and increases oil burner efficiency—improves combustion—reduces carbon and soot formation—eliminates "puff backs," odor and smoky chimneys — overcomes water and sludge. One quart of KLEEN-FLO conditions 500 GALLONS OF OIL—simply add thru oil fill line. Tested, approved and used by many of the country's great industrial plants. Write for profit-making facts today.

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West Coast Distributor
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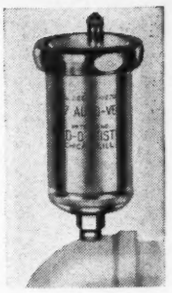

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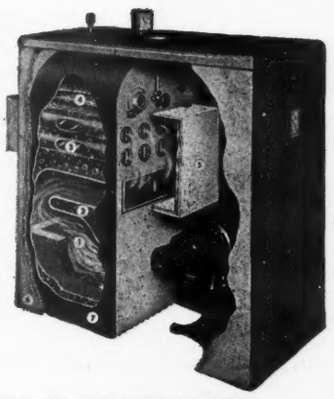

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RAY

Our 75th Year

No idle boast is the slogan that circles the Ray trade mark a-top this ad: Ray oil burners are indeed known and used wherever fuel oil is burned. This World-Wide Acceptance is no accident; it is based on the fact that Ray oil burners are capable of burning any and all grades of fuel oil with the utmost efficiency, economy and dependability in any climate.

RAY OIL BURNER CO.
401 BERNAL AVE · SAN FRANCISCO

	R-1100 Central		R-1100 Space	
	Number Issued	Average Gallons	Number Issued	Average Gallons
Sarpy	139	1217.6	411	496.6
Saunders	122	1251.9	627	549.7
Seward	68	1379.7	104	513.8
Stanton	10	1092.5	240	135.2
Thayer	38	1029.9	420	486.9
Washington	60	1218.5	450	530.3
York	86	1234.1	689	543.1
Sioux City District				
Antelope	132	1245.1	421	648.8
Boyd	1	1250.0	264	789.8
Brown	82	1328.7	316	609.4
Cedar	55	1455.1	601	615.3
Cherry	98	1226.7	569	582.5
Dakota	94	727.6	380	575.6
Dixon	..	..	272	680.9
Holt	229	1260.0	810	599.5
Keya Paha	14	1160.7	113	576.2
Knox	64	1189.1	411	618.1
Pierce	69	1203.9	573	681.2
Rock	231	665.6	..	..
Thurston	14	1261.4	316	531.0
Wayne	36	1562.2	532	526.2
Wheeler	9	484.4	70	664.1
NEBRASKA TOTAL	17,024	1262.9	44,488	551.6
NORTH DAKOTA				
Fargo District				
Adams	5	654.0	21	339.8
Barnes	186	1340.6	380	592.5
Benson	..	..	260	622.6
Billings	..	..	3	566.7
Bottineau	38	1597.4	139	821.4
Bowman	..	..	6	474.2
Burke	..	..	..	..
Burleigh	1	570.0	19	502.1
Cass	1,427	1504.8	875	646.6
Cavalier	5	1660.0	287	670.1
Dickey	43	1397.2	260	704.7

	R-1100 Central		R-1100 Space	
	Number Issued	Average Gallons	Number Issued	Average Gallons
Divide	2	1200.0	8	641.3
Dunn	..	..	..	..
Eddy	10	1500.0	59	569.1
Emmons	12	1147.5	74	615.6
Foster	5	1320.0	27	626.3
Golden Valley	..	..	6	550.0
Grand Forks	745	1425.7	803	666.6
Grant	..	..	13	440.0
Griggs	17	1341.2	104	599.7
Hettinger	..	..	3	703.0
Kidder	1	630.0	44	573.7
La Moure	55	1238.5	236	684.6
Logan	8	1292.5	109	585.2
McHenry	5	790.0	28	670.4
McIntosh	11	556.4	108	479.4
McKenzie	5	1120.0	14	559.3
McLean	5	1090.0	8	708.8
Mercer	..	..	1	185.0
Morton	..	..	31	379.1
Mountrail	3	1583.3	2	350.0
Nelson	15	1550.0	172	627.8
Oliver	..	..	..	..
Pembina	70	1221.4	652	547.7
Pierce	11	1359.1	40	476.4
Ramsey	60	1205.0	282	667.9
Ransom	65	1423.8	454	546.3
Renville	2	680.0	30	772.3
Richland	151	1413.8	1,172	541.3
Rolette	12	1308.3	125	600.7
Sargent	28	1270.4	526	632.8
Sheridan	..	..	11	540.4
Sioux	..	..	27	595.2
Slope	1	320.0	1	275.0
Stark	..	..	3	570.0
Steele	6	950.0	145	619.0
Stutsman	216	1439.8	294	673.4
Towner	17	1776.5	200	692.1
Traill	87	1525.6	594	695.8
Walsh	108	1373.0	744	631.6

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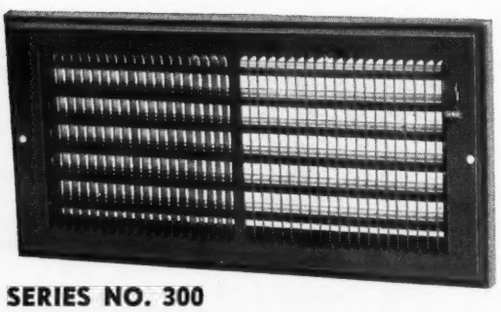
Beauty and Performance COMBINED



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2. Four controls
3. Steel front plate cut to sketch
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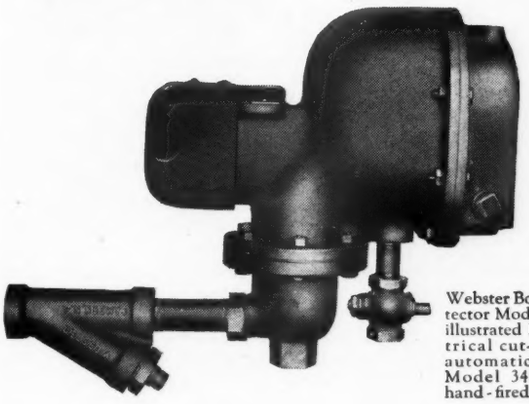

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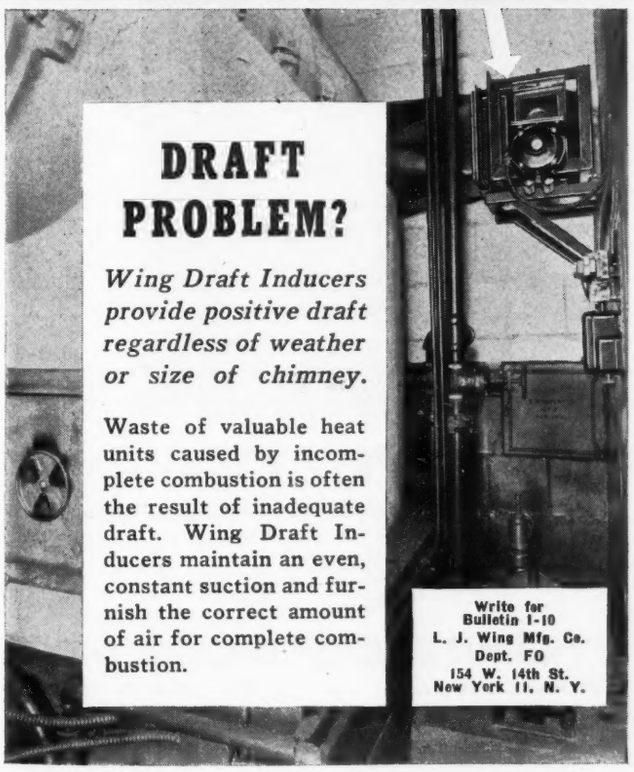
Wing Draft Inducers



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Wing Draft Inducers provide positive draft regardless of weather or size of chimney.

Waste of valuable heat units caused by incomplete combustion is often the result of inadequate draft. Wing Draft Inducers maintain an even, constant suction and furnish the correct amount of air for complete combustion.

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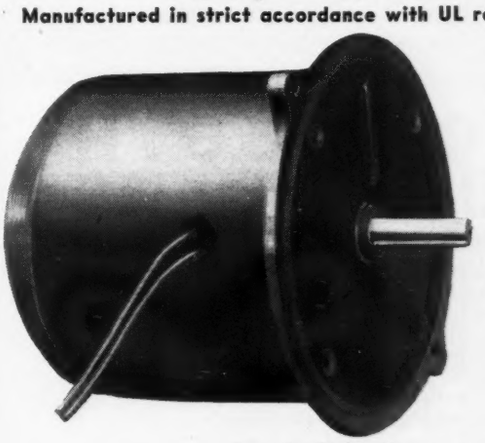

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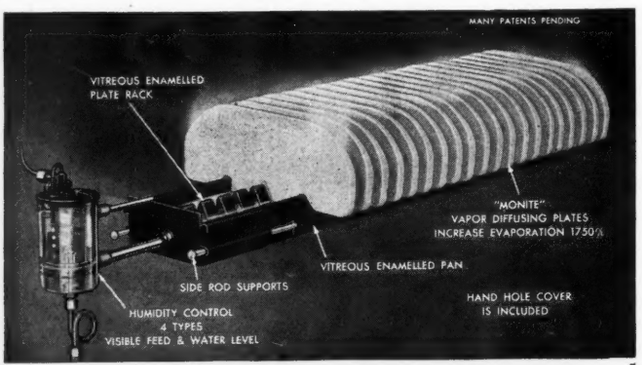
Also Available in

1/6, 1/4 and 1/3 HP.
and CAPACITOR-START 1/4 HP.

BROWN ELECTRIC COMPANY

FOREST HILLS, N. Y.

	R-1100 Central		R-1100 Space	
	Number Issued	Average Gallons	Number Issued	Average Gallons
Ward	46	1867.4	71	537.3
Wells	2	2000.0	63	608.9
Williams	7	376.9	36	377.3
NORTH DAKOTA TOTAL	3,493	1440.8	9,570	619.7
SOUTH DAKOTA				
Sioux Falls District				
Minnehaha	467	1344.3	1,470	582.4
Aurora	10	1150.0	198	572.0
Beadle	102	1264.4	164	646.6
Bennett	1	1050.0	196	519.0
Brookings	291	1057.5	486	626.6
Brown	433	1470.0	481	634.4
Brule	40	1412.0	256	591.2
Buffalo	..	..	71	624.4
Butte	27	1142.6	516	481.4
Campbell	..	..	47	570.9
Charles Mix	47	1193.2	516	545.6
Clark	42	1196.9	306	633.7
Codington	205	1431.1	492	594.2
Carson	..	..	28	510.7
Custer	26	1334.6	123	793.5
Davison	276	1326.6	632	572.4
Day	37	1523.5	431	596.4
Deuel	31	878.1	473	562.3
Dewey	..	..	8	833.1
Douglas	21	1357.1	290	554.8
Edmunds	16	1363.8	230	627.6
Fall River	100	777.7	232	544.0
Shannon	..	..	109	143.6
Faulk	6	1306.7	182	584.9
Grant	69	1260.8	474	676.7
Gregory	38	763.7	303	381.0
Haakon	17	1084.1	79	591.0
Hamlin	10	1282.0	273	575.8
Hand	38	1258.5	295	629.4
Hanson	12	1364.2	250	611.6
Harding	8	1254.8	78	465.8
Hughes	154	1478.9	219	560.9
Hutchinson	101	1189.3	315	582.0
Hyde	12	1185.8	144	599.4
Jackson	3	1016.7	77	476.8
Jereuld	..	..	286	513.9
Jones	16	1210.0	80	538.8
Kingsbury	23	1134.8	532	641.4
Lake	95	1417.1	120	649.3
Lawrence	35	1224.3	281	582.6
Lincoln	72	1249.4	680	607.4
Lyman	35	1148.0	272	579.8
McCook	40	1537.5	450	609.5
McPherson	8	1203.1	172	479.3
Marshall	28	1375.7	237	586.9
Meade	11	980.0	317	531.8
Mellette	2	1025.0	87	515.0
Miner	12	900.8	325	588.8
Moody	17	1100.0	373	596.2
Pennington	32	1139.7	619	480.0
Perkins	1	500.0	61	499.6
Potter	13	1675.4	418	300.8
Roberts	26	1523.1	657	582.6
Sanborn	23	1209.6	228	590.7
Spink	87	1254.0	436	558.6
Stanley	23	1219.8	88	573.1
Sully	2	1225.0	41	550.1
Tripp	4	917.5	259	576.1
Todd	2	925.0	297	489.1
Turner	105	1284.5	865	553.3
Walworth	8	1291.3	43	562.1
Ziebach	..	..	15	772.7
Sioux City District				
Bon Homme	43	1194.2	447	545.1
Clay	49	1200.6	517	596.8
Union	52	1152.3	620	616.5
Yankton	123	1278.3	500	586.0
SOUTH DAKOTA TOTAL	3,627	1283.8	20,767	525.7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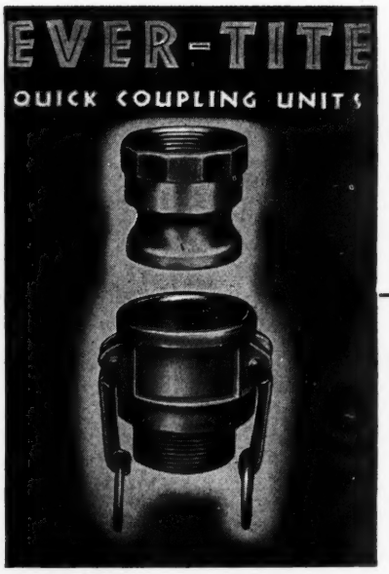

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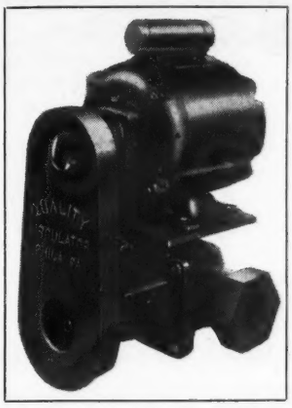

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QUALITY SPECIALTY COMPANY, INC.

211 N. 2nd ST. MARKET 7-5210 PHILA. 6, PA.

	R-1100 Central Number Issued	R-1100 Central Average Gallons	R-1100 Space Number Issued	R-1100 Space Average Gallons
WISCONSIN				
Green Bay District				
Brown	680	1628.5	1,570	590.1
Calumet	100	1480.5	711	563.2
Door	126	1389.6	1,310	550.4
Florence	11	1696.4	68	457.8
Forest	13	2130.8	215	677.0
Kewaunee	86	1422.6	531	570.4
Langlade	145	1595.4	295	420.1
Lincoln	109	1552.7	821	603.9
Manitowoc	628	1294.3	3,193	516.4
Marathon	669	1436.3	2,387	568.1
Marinette	126	1578.7	780	653.5
Oconto	75	1494.4	504	607.7
Oneida	217	1350.8	655	577.9
Ontagamie	1,176	2179.1	1,808	557.1
Portage	204	1504.4	710	592.3
Price	50	1590.0	539	670.5
Shawano	111	1521.5	743	492.4
Taylor	57	1436.0	292	508.4
Vilas	95	1279.2	269	510.7
Wanpaca	575	1281.8	1,106	568.3
Waushara	49	1346.1	426	589.4
Winnebago	1,265	1510.9	2,350	545.9
Wood	503	1531.4	1,974	445.4
LaCrosse District				
Barron	222	1391.2	1,790	649.0
Buffalo	122	1204.1	524	507.5
Chippewa	383	1284.0	1,509	629.8
Clark	114	1244.4	973	567.8

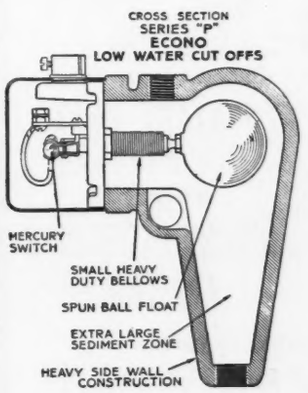
Ace Nozzles

Products of 26 years' experience in the design and production of oil-burners. Extreme Precision—Guaranteed Accuracy.

All Capacities and Angles
"For those who want the best"

Ace Cooperating Engineers

903 Wrightwood Ave. Chicago 14, Ill.
OSCAR C. SCHROEDER, Owner



ECONO

Low Water Cut-Offs are precision built and reasonably priced. Made to fit all makes of steam boilers.

Order from your Jobber.

ECONO Products Company
250 Stuart Street,
Boston 16, Massachusetts

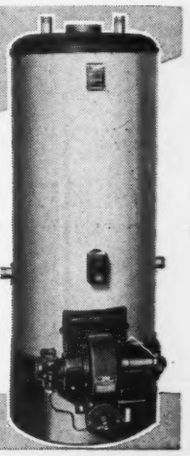
ADDED PROOF THAT

IN OIL BURNER IGNITION TRANSFORMERS

Super Electric Lead the Field

SEE PAGE 15

Bock
OIL BURNING WATER HEATERS

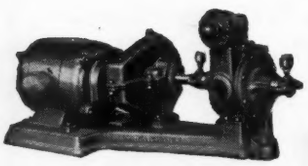


TWO BURNER TYPES — VAPORIZING WITH ELECTRIC IGNITION FOR THE SMALL JOB—PRESSURE ATOMIZING FOR THE LARGER. THE BEST IN OIL WATER HEATERS.

Bock **CORPORATION**
MADISON, WISCONSIN

BLACKMER PUMPS

The Key to
- LOWER PUMPING COSTS
- SUSTAINED PUMPING CAPACITY
- PUMP DEPENDABILITY

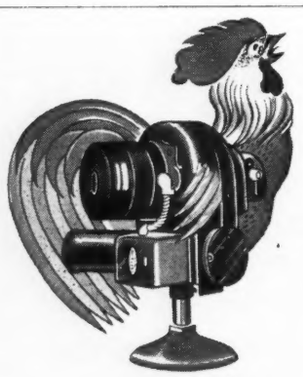


Write for Bulletin 102—PUMPS FOR THE PETROLEUM INDUSTRY which explains why the "Bucket Design" (swinging vane principle) maintains pumping capacity by automatically compensating for wear and how the buckets, when finally worn out, are easily replaced and the pump restored to its normal capacity.

BLACKMER PUMP CO., 2170 Century Ave., Grand Rapids 9, Michigan

SERVING THE PETROLEUM INDUSTRY FOR OVER 40 YEARS

	R-1100 Central Number Issued	R-1100 Central Average Gallons	R-1100 Space Number Issued	R-1100 Space Average Gallons
Crawford	96	1265.1	584	496.8
Dunn	190	1518.7	1,097	587.7
Eau Claire	1,095	1428.0	3,108	413.1
Grant	617	1475.5	1,928	573.3
Jackson	43	1379.5	379	598.7
La Crosse	1,554	1330.3	2,584	567.3
Monroe	364	1381.6	1,097	529.4
Pepin	80	1455.0	353	578.0
Richland	188	1467.1	231	592.3
Rusk	83	1302.7	395	500.0
Trempealean	76	1361.8	659	523.5
Vernon	196	1391.4	1,472	547.6
Milwaukee District				
Adams	16	1235.6	227	520.7
Columbia	602	1494.4	1,192	510.2
Dane	6,142	1486.4	5,471	626.9
Dodge	719	1301.0	2,363	491.0
Ford du Lac	807	1615.8	2,117	626.6
Green	547	1451.2	1,096	599.3
Green Lake	122	1329.5	766	566.5
Iowa	302	1123.7	892	607.8
Jefferson	956	1333.2	1,520	612.4
Juneau	87	1040.9	601	511.6
Kenosha	786	1545.8	1,439	585.7
Lafayette	129	1369.7	1,230	549.1
Marquette	13	1438.5	267	580.4
Milwaukee	12,077	1581.1	17,900	543.8
Ozankee	487	1390.7	1,199	547.7
Racine	1,614	1516.3	3,196	594.2
Rock	1,977	1396.8	2,541	599.8



HOME OWNERS CROW

about

INSTANT HEAT OIL BURNERS

Attractive

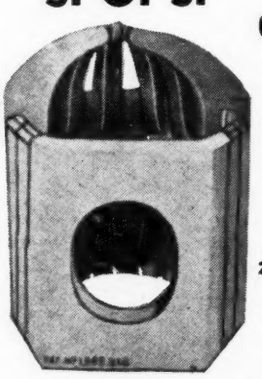
DISTRIBUTORSHIPS AVAILABLE

Write, wire or phone for details

Instant Heat Oil Burner Corp.

8010—17th Ave., Brooklyn 14, N. Y. BEnsonhurst 6-4109

S. O. S. FIRE-KING COMBUSTION CHAMBER



- Really Interlocking!
- No Cement!
- Slip-On Baffle!
- Makes Any Shape!
- Kiln-Burned!

Write for Full Descriptive Literature

S. O. S. PRODUCTS CO., INC.
282 Nassau Ave., Brooklyn 22, N. Y.
Dept. F.O.

ADDED PROOF THAT

IN OIL BURNER IGNITION TRANSFORMERS

Super Electric Leads the Field

SEE PAGE 15

GILLEN

Automatic Oil-Burning

Furnaces—Water Heaters

J. L. GILLEN CO.

DOWAGIAC, MICHIGAN

Highest Quality joined with
Accuracy and Workmanship---
Responsibility gives you great
Satisfaction and fullest
Confidence toward our
HARSCH Nozzles!

H. HARSCH & CO., INC., 230 TUSCAN ROAD, MAPLEWOOD, N. J.

	R-1100 Central Number Issued	R-1100 Central Average Gallons	R-1100 Space Number Issued	R-1100 Space Average Gallons
Sank	648	1241.0	1,278	519.4
Sheboygan	1,089	1356.7	3,569	549.1
Walworth	1,101	1472.8	2,214	584.7
Washington	580	1493.4	1,782	615.1
Wantesha	1,749	1413.8	3,336	568.3
Duluth District				
Ashland	54	1715.7	579	583.5
Bayfield	37	1459.1	507	546.7
Burnett	23	1963.0	284	669.7
Douglas	372	1582.6	1,383	772.5
Iron	34	1957.4	360	605.8
Sawyer	74	1255.9	267	298.0
Washburn	69	1504.3	373	658.7
Pierce	315	1365.1	1,473	558.0
Polk	173	1298.0	1,047	596.4
St. Croix	352	1592.7	1,671	586.4
WISCONSIN TOTAL	46,546	1493.0	107,400	564.0

NORTHWESTERN STATES

	R-1100 Central Number Issued	R-1100 Central Average Gallons	R-1100 Space Number Issued	R-1100 Space Average Gallons
IDAHO				
Boise District				
Ada	725	797.5	2,235	526.0
Adams	..	..	7	957.0
Boise	..	..	14	687.1
Canyon	169	1012.4	1,318	587.1
Elmore	3	1052.6	259	581.3
Gem	..	..	379	601.9
Owyhee	18	752.8	176	580.1
Payette	14	1108.2	296	626.6

CLEAN SWEEP

This ALL PURPOSE Soot Remover remarkably cleans ALL kinds of jobs, pressure, rotary, vaporizing oil burners.

Approved by oil burner manufacturers and testing laboratories. Developed especially for the vaporizing pot type burner units. Will not clog holes, leave a residue, or overheat vital parts.

LOOK FOR THE BROOM ON THE PACKAGE
SEE YOUR JOBBER OR WRITE US.

CLEAN SWEEP CO. P. O. BOX 156 SO. LANSING 9, MICH.

LESS OIL--MORE HEAT

ALL OTHER burners push air in BEHIND oil vapor. AIRE burners balance air in correct volume behind, ahead and through oil vapor.

Ten other patent-pending improvements.

Immediate delivery ½ to 5 gal. sizes. Get your franchise NOW.

AIRFLAME
646-8 McALLISTER AVE. WAUKEGAN, ILL.

WANTED:

EXPERIENCED OIL BURNER SERVICEMEN

This top-notch manufacturer of oil burners and gasoline and diesel heaters seeks experienced oil burner servicemen. After a period of laboratory training these men will become Field Engineers in our new Automotive Heater Division. Write full details covering background, experience and income expected to Fluid Heat Division, Anchor Post Products, Inc., 6500 Eastern Ave., Baltimore 24, Maryland.

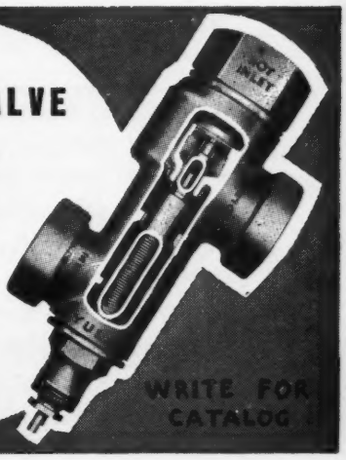
Yula

MIXING VALVE

The Yula Mixing Valve perfectly tempers hot water to a predetermined temperature for domestic use at lowest cost.

It "tops" them all.

Write to Dept. F7



Yula
WATER HEATERS, INC.
166 WEST 225 ST. • NEW YORK 63

WRITE FOR CATALOG

	R-1100 Central		R-1100 Space	
	Number Issued	Average Gallons	Number Issued	Average Gallons
Valley	..	..	278	895.8
Washington	48	612.0	352	526.4
Spokane District				
Benewah	8	1062.5	80	595.6
Bonner	35	744.0	312	553.1
Boundary	5	1268.0	41	650.2
Clearwater	7	1210.0	143	544.6
Idaho	15	1441.3	187	705.0
Kootenai	66	1528.0	1,157	512.7
Latah	117	1259.6	719	639.1
Lewis	2	1100.0	280	521.3
Nez Perce	111	1193.6	423	544.8
Shoshone	102	1208.5	1,692	632.8
IDAHO TOTAL	1,445	960.5	10,348	581.9
OREGON				
Boise District				
Malheur	9	576.4	1,014	502.6
Portland District				
Baker	61	1585.7	388	705.3
Benton	227	1304.9	850	656.4
Clackamas	1,165	1082.8	3,233	551.1
Clatsop	744	985.1	2,480	529.2
Columbia	302	1094.6	1,159	633.6
Coos	238	1192.2	1,157	552.4
Crook	36	769.4	322	502.9
Curry	1	1600.0	92	487.7
Deschutes	117	1304.8	543	656.5
Douglas	29	1197.6	755	497.4
Gilbam	29	1057.1	203	671.2
Grant	11	1559.1	157	568.9
Harney	13	830.0	63	603.9
Hood River	77	1395.4	311	519.6
Jackson	413	1160.4	2,305	607.1
Jefferson	2	970.0	89	586.3
Josephine	236	694.2	1,767	275.4
Klamath	19	1285.3	4,314	471.5
Lake	44	1307.0	291	696.7
Lane	622	1141.4	2,499	593.2
Lincoln	77	1064.1	846	615.7
Linn	238	1135.3	1,855	667.3
Marion	1,011	2079.2	3,858	577.6
Morrow	6	1065.0	457	695.7
Multnomah	17,864	1192.3	11,398	561.2
Polk	253	891.9	836	603.5
Sherman	50	1064.0	365	362.5
Tillamook	119	1087.1	849	664.3
Umatilla	298	1130.1	2,449	555.7
Union	292	777.1	241	654.6
Wallowa	3	1146.6	61	489.9
Wasco	319	1273.8	1,031	623.6
Washington	617	1133.5	2,040	613.2
Wheeler	5	1080.0	99	459.1
Yamhill	198	1155.8	1,527	611.6
OREGON TOTAL	25,736	1200.5	50,890	563.7
WASHINGTON				
Portland District				
Clark	1,083	1073.1	4,549	565.3
Cowlitz	425	1299.0	2,786	609.2
Klickitat	56	1076.6	396	623.7
Pacific	12	1350.0	479	618.1
Skamania	2	1185.0	170	613.4
Wahkiakum	37	1098.6	211	568.1
Seattle District				
Chelan	707	933.9	1,977	575.7
Clallam	278	1272.9	1,749	710.2
Grays Harbor	382	1922.9	2,514	768.5
Island	14	1246.1	446	616.5
Jefferson	91	1501.4	801	730.2
King	32,648	1098.8	42,912	558.9
Kitsop	12,056	582.3	4,668	595.1

HEATCRAFT
leads the
Oil Burner field
with these
7 important Features

1 Finger-tip air control adjustment is foolproof, easy to operate. Settings automatically lock.

2 Blast tubes are one-piece, seamless cold rolled steel.

3 Body castings are heavy aluminum, closely machined for precision alignment.

4 Cast iron deflector vanes assure longer life—perfect air and oil spray control.

5 Transformers are radio shielded, moisture proof.

6 Rigid, bar type electrode assembly is easily removable.

7 Observation door at back simplifies adjustments.

HEATCRAFT COMPANY
VAUGHAN BLDG., LOUISVILLE, KY.

Biggest Oil Burner Opening

KRES-KNO
Ball Flame
OIL BURNERS

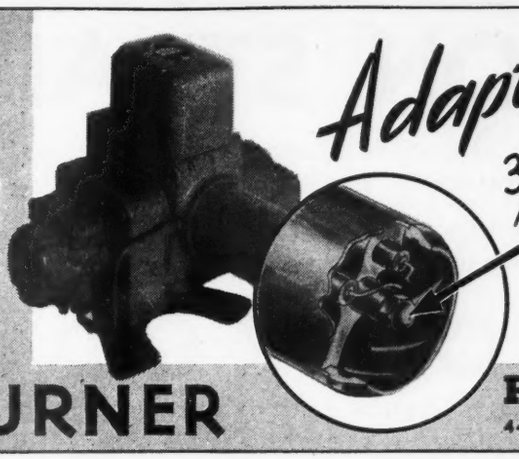
Here is an oil burner that will enable you to crash the big low-income market. The price of Kres-Kno Ball Flame balanced-heat oil burner has been brought down so every home can now afford to have one. This means sales galore in a greatly expanded market.

Kres-Kno is a small, light weight, completely packaged oil burner adaptable for all types of furnaces, boilers and heaters.

A few choice territories still open.

KRESNO-STAMM MFG. CO.
(America) Inc.
Palisades Park, N. J.

the NEW Precision Built P&K DOMESTIC OIL BURNER



Adaptable! 3/4 to 4 Gallons per hour

★ One unit meets the requirements of practically any size home with equal efficiency and economy . . . Standard interchangeable parts; precision engineered materials; underwriters approved. Write for descriptive booklet

PERSSON & KELLISON
4413 AIRPORT WAY · SEATTLE 8, WASHINGTON

	R-1100 Central Number Issued	R-1100 Central Average Gallons	R-1100 Space Number Issued	R-1100 Space Average Gallons
Lewis	236	1065.2	1,758	559.3
Mason	101	970.0	1,040	726.8
Pacific	68	1444.1	431	654.0
Pierce	4,057	1031.2	16,339	664.9
San Juan	13	1495.4	215	533.8
Skagit	409	1267.7	3,827	609.8
Snohomish	1,913	878.0	8,674	451.9
Thurston	973	1813.5	2,807	471.4
Whatcom	519	1445.0	5,548	437.9
Yakima	1,209	1093.3	6,865	489.5
Okanogan	49	1256.7	536	559.8
Spokane District				
Adams	26	1230.0	894	528.5
Asotin	43	1047.0	244	530.0
Benton	15	1064.0	3,945	279.6
Columbia	25	1106.8	294	547.0
Douglas	49	1168.4	460	552.8
Ferry	..	..	35	608.9
Franklin	209	1351.7	891	436.0
Garfield	214	1350.0	981	421.7
Grant	133	1118.9	738	668.7
Lincoln	220	891.5	1,246	625.4
Okanogan	18	1384.7	776	567.2
Pend Oreille	9	1503.8	119	606.5
Spokane	2,268	1260.7	6,307	564.0
Stevens	29	1211.7	162	600.5
Walla Walla	673	1072.2	2,083	552.0
Whitman	233	1263.3	2,151	589.3
WASHINGTON TOTAL	61,589	1115.1	133,983	538.2

HAYWARD OIL BURNERS

ROTARY and PRESSURE ATOMIZING TYPES

Dealer and Distributor Inquiries Invited.

HAYWARD MFG. CO., INC.

505 COURT STREET BROOKLYN 31, N. Y.

NOTICE!

BROOKLYN DEALERS & WHOLESALERS
FOR YOUR CONVENIENCE
WE HAVE OPENED A STORE AT

23 DEAN STREET

WHERE YOU CAN PICK UP IRON-HIDE COMBUSTION CHAMBERS, BAFFLES AND ADJUSTABLE BAFFLE SUPPORTS

IRON-HIDE REFRACTORY PROD.
MATAWAN, N. J.

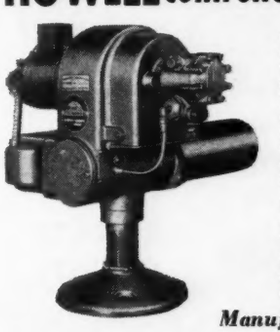
ADDED PROOF THAT

IN OIL BURNER IGNITION TRANSFORMERS

Super Electric Leads the Field

SEE PAGE 15

HOWELL controlled flame BURNERS



can be depended on for high efficiency performance . . . year after year. Main chassis is a sturdy one-piece aluminum casting . . . no joints to spread . . . cannot warp or twist. Motor, pump and fan remain in perfect alignment . . . always. Draft tube is heat and rust resisting, chrome nickel alloy casting.

Parts mounting dimensions are standard, permitting interchange of parts for servicing.

Draft tube available for use in designed furnaces and boilers; with or without mounting flange.

Manufacturers inquiries invited.

H. A. HOWELL OIL BURNER CO., DIXON, ILL.

BUTTON STRAINERS!

Hago Button Strainers thread on to the *nozzle*, just like cylindrical strainers.

Eliminate the necessity of digging into the adapter, one operation removes nozzle and strainer from adapter.

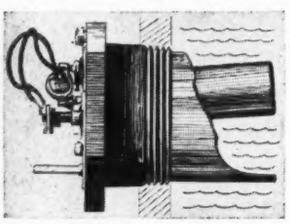
HAGO PRODUCTS

1281 SPRINGFIELD AVENUE **IRVINGTON, N. J.**

SOUTH ATLANTIC STATES

	R-1100 Central Number Issued	R-1100 Central Average Gallons	R-1100 Space Number Issued	R-1100 Space Average Gallons
FLORIDA				
Jacksonville District				
Alachua	315	279.2	3,113	167.2
Baker	1	270.0	170	186.5
Bradford	2	280.0	448	194.1
Brevard	27	453.7	1,978	96.1
Broward	351	96.4	1,587	52.6
Charlotte	2	475.0	228	120.0
Citrus	1	300.0	262	120.4
Clay	9	564.4	749	219.6
Collier	..	..	95	112.6
Columbia	7	542.9	562	180.4
Dade	..	..	19,606	532.3
De Soto	..	..	626	125.1
Dixie	2	289.0	50	138.7
Duval	2,089	568.4	39,129	182.1
Flagler	1	440.0	75	175.1
Franklin	98	209.1	42	221.3
Gadsden	74	465.1	575	176.6
Gilchrist	21	293.2	..	..
Glades	..	..	56	136.0
Hamilton	3	296.7	103	170.8
Hardee	..	..	247	106.4
Hendry	..	..	327	99.9
Hernando	28	388.3	208	125.9
Highlands	303	181.7	526	110.3
Hillsborough	65	526.9	43,338	126.9
Indian River	24	277.6	738	87.3
Jefferson	7	540.7	141	176.8
Lafayette	..	..	101	97.6

BRONZE CONTROLS
for Permanent Protection



Low Water Cutoffs and Pressure Controls

Available In Single or Combination Units

Write for further information

NEWARK CONTROLS BLOOMFIELD, NEW JERSEY

SPECIFY FOR LONG TERM SERVICE

Nuavco
ORIFICE CONTROL

AIR VALVES DESIGNED ESPECIALLY FOR OIL BURNING OR AUTOMATICALLY FIRED HEATING.

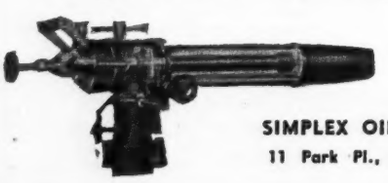
Send for Catalog and Wholesaler Discount Sheets

NEW YORK AIR VALVE CORPORATION

611-621 BROADWAY, NEW YORK 12, N. Y.

Since SIMPLEX OIL HEATING CORPORATION — SIMPLEX — OIL BURNING SYSTEMS — REG. TRADE MARK *1910*

Simplex Oil Burning Systems



RESULTS COUNT!

SIMPLEX OIL HEATING CORP.
11 Park Pl., New York 7, N. Y.

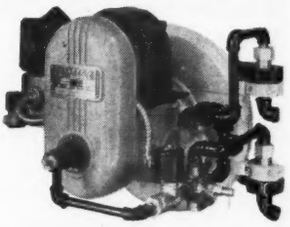
ADDED PROOF THAT
IN OIL BURNER IGNITION TRANSFORMERS

Super Electric Leads the Field

SEE PAGE 15

GOOD DELIVERIES
Commercial—Industrial—Rotary Oil Burners

No. 5 and No. 6 oil



10 to 135 g.p.h.

STAFFCO ENGINEERING COMPANY
2320 W. Van Buren St. — Chicago 12, Ill.
Fred Ravnsbeck — *Chief Engineer*

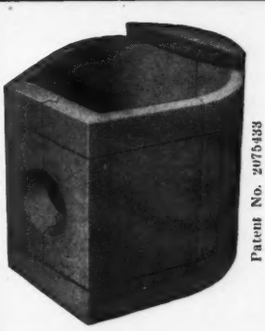
OIL BURNER IGNITION TRANSFORMERS
Underwriter Approved
25 years of research and practical experience.
Well-balanced design—insures dependable performance.
Radio filtered.
Standard types with universal mounting plates for easy interchangeability. Voltages ranging from 5,000 to 12,000 volts.
Special voltages for domestic and foreign use.
Inquiries Invited
OIL BURNER DEVICES CORP.
14 River Street, Norwalk, Conn.

	R-1100 Central		R-1100 Space	
	Number Issued	*Average Gallons*	*Number Issued*	*Average Gallons*
Lake	259	393.9	2,199	174.9
Lee	15	267.1	1,624	64.0
Leon	184	733.8	1,630	247.9
Levy	35	122.3	159	126.1
Liberty	1	100.0	..	..
Madison	7	465.7	183	171.5
Manatee	18	647.6	2,284	108.2
Marion	44	692.7	1,497	182.2
Martin	..	..	347	57.1
Monroe	2	250.0	146	45.4
Nassau	8	991.3	782	206.6
Okeechobee	..	..	83	84.8
Orange	1,344	287.5	7,398	163.0
Osceola	..	..	1,025	125.4
Palm Beach	226	213.5	5,626	202.0
Pasco	15	263.7	677	132.3
Pinellas	892	632.0	24,339	102.4
Polk	422	268.9	7,461	113.1
Putnam	28	417.1	986	161.2
St.Johns	107	678.8	2,676	181.8
St. Lucie	..	..	853	63.1
Sarasota	85	297.6	2,552	103.9
Seminole	8	311.9	2,063	95.6
Sumter	8	349.4	317	133.1
Suwannee	20	521.8	359	633.1
Taylor	1	1000.0	65	174.4
Union	1	380.0	60	186.7
Volusia	683	560.9	8,035	188.7
Wakulla	..	..	12	129.2
FLORIDA TOTAL	8,015	433.7	190,518	132.1

M & L TANKLESS WATER HEATERS
- EASY TO INSTALL
- LOW COST IN OPERATION
- GIVE AMPLE HOT WATER
- ARE SAFE & DURABLE
- LOW INITIAL COST.

Manning & Lewis Engineering Company
28-42 OGDEN STREET NEWARK 4, N. J.

truly TIME-TESTED



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COMPLETE JOB SHIPPED IN WOODEN BOX

Monogram Combustion Chamber Co.
PHILADELPHIA 4, PA.

AVAILABLE FOR IMMEDIATE DELIVERY!
CONVERSION OIL BURNERS
U.L. approved gun type—complete with controls
Write for complete details on Special Discounts and Territorial Franchises
PENN OIL BURNER CONTROLS AT MANUFACTURERS DISCOUNTS AND ELECTRIC MOTORS AVAILABLE
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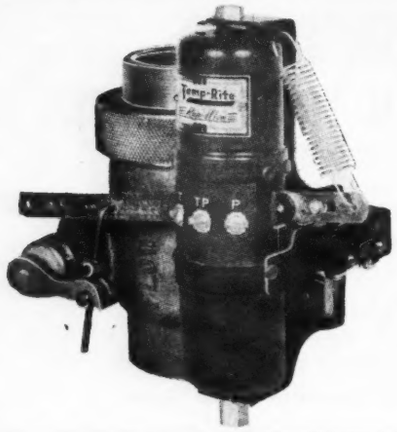


TEMP-RITE "RAPID FLOW" SYSTEMS

A thermostatically controlled, pressure-tight valve, with a mechanically operated switch to start burner when "RAPIDFLOW" opens.

FOR SUMMER-WINTER HOOKUP ON GRAVITY HOT WATER SYSTEMS

An inexpensive, trouble-free, silent-operating System that has been developed by veterans in the business. 3 sizes: 400, 600, 800 sq. ft. standing radiation. A profitable, goodwill building item for dealers.

Write, wire or phone.

TEMP-RITE CORPORATION

1767 CARSWELL ST., BALTIMORE 18, MARYLAND

	R-1100 Central Number Issued	R-1100 Central Average Gallons	R-1100 Space Number Issued	R-1100 Space Average Gallons
GEORGIA				
Atlanta District				
Baldwin	..	..	8	92.5
Banks	..	..	..	..
Barrow	..	..	67	183.3
Bartow	5	1160.8	121	115.0
Bibb	18	1215.8	550	139.8
Bleckley	..	..	51	159.0
Butts	3	408.7	33	362.1
Carroll	..	..	..	..
Catoosa	..	..	..	..
Chattahoochee	..	..	..	..
Chattooga	..	..	32	198.5
Cherokee	..	..	63	67.0
Clarke	20	839.0	250	235.1
Clayton	..	..	116	212.3
Cobb	17	972.9	991	273.7
Coweta	20	399.5	87	52.9
Crawford	..	..	..	..
Crisp	70	365.9	102	216.2
Dade	..	..	4	122.5
Dawson	..	..	..	..
DeKalb	97	969.4	614	170.3
Dodge	6	1001.7	16	225.8
Dooly	..	..	46	168.5
Douglas	1	1550.0	4	257.5
Elbert	8	496.9	215	148.4
Fannin	1	300.0	5	269.8
Fayette	2	733.5	2	300.0
Floyd	11	635.9	170	91.1
Forsyth	..	..	..	..
Franklin	2	470.0	29	118.1

PREFERRED

DRAFT-A-JUSTOR

Write for literature and trade price

The Original. Still the Best. Hundreds of Thousands in Use. • Holds the draft constant in the fire box. • Scientific draft control for the smallest to the largest jobs. • Stove, domestic, and commercial sizes from 4" to 24" in diameter. • Industrial sizes from 24" x 24" to 5' x 12'.

PREFERRED UTILITIES Mfg. Corp.

1860 Broadway, New York 23, N. Y. Boston Office: 839 Beacon St.

Rajah

HAND CRIMPING TOOL

IT CUTS AND STRIPS AND ALSO CRIMPS

Rajah Terminals to ignition cable without the use of solder or any other tools

The RAJAH COMPANY, Bloomfield, N. J.

ADDED PROOF THAT

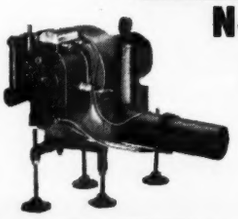
IN OIL BURNER IGNITION TRANSFORMERS

Super Electric Leads the Field

SEE PAGE 15

★ **RAYFIELD AUTOMATIC** ★

No. 5 OIL BURNERS



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Burn No. 5 heavy fuel oil. Self contained, all electric. Self-lubricating. Many new exclusive features. Write for full details

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C. L. RAYFIELD CO.

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about **25%** ***Lower in Cost of Operation Than The Average Gun Type Oil Burner***

Scientifically Designed Since 1930

BURNS CATALYTIC FUEL OIL CLEAN

No SMOKE SOOT

Ideal For Replacement Business

84% Combustion Efficiency

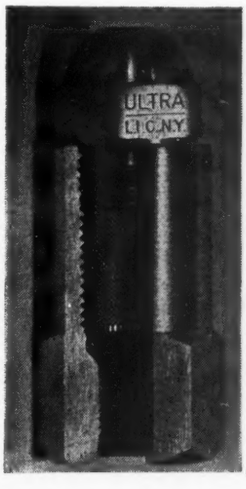
Territories Available for Dealerships

Manufactured by

H. J. HUELLER MANUFACTURING COMPANY INC.

559 ROGERS AVENUE, BROOKLYN 25, NEW YORK

	R-1100 Central		R-1100 Space	
	Number Issued	*Average Gallons*	*Number Issued*	*Average Gallons*
Fulton	425	489.3	1,868	136.8
Gilmer	..	..	..	..
Gordon	9	533.3	1	250.0
Greene	2	500.0	25	305.8
Gwinnett	4	2153.0	108	98.6
Habersham	8	465.6	44	174.3
Hall	15	1088.3	144	117.4
Hancock	2	499.0	12	226.2
Haralson	7	326.3	7	50.0
Harris	2	737.5	33	146.4
Hart	2	435.0	78	214.7
Heard	..	..	1	100.0
Henry	..	..	38	192.8
Houston	4	1007.5	1,101	172.7
Jackson	..	..	..	..
Jasper	..	..	34	204.9
Johnson	..	..	5	277.0
Jones	2	500.0	16	478.1
Lamar	1	1100.0	21	172.1
Laurens	11	804.5	208	230.4
Lee	..	..	1	483.0
Lincoln	..	..	4	157.5
Lumpkin	..	..	..	..
Macon	6	703.3	30	205.6
Madison	3	433.3	12	137.3
Marion	..	..	11	91.1
Meriwether	3	1156.7	104	178.6
Monroe	..	..	12	185.5
Morgan	2	705.0	25	124.4
Murray	..	..	3	313.3
Muscogee	..	..	2,252	287.1
Newton	4	3033.8	205	171.8
Oconee	..	..	..	..
Oglethorpe	..	..	9	95.9
Paulding	6	505.0	1	50.0
Peach	13	730.4	128	213.6
Pickens	3	645.0	2	200.0
Pike	1	1900.0	15	97.0
Polk	3	623.3	43	116.4
Pulaski	2	625.0	63	187.2
Putnam	8	356.3	34	98.2
Quitman	..	..	8	229.4
Rabun	..	..	..	..
Randolph	6	983.3	59	189.9
Rockdale	..	..	20	128.3
Schley	..	..	29	170.9
Spalding	4	908.8	96	134.6
Stephens	20	681.8	122	295.6
Stewart	..	..	29	84.0
Sumter	4	1300.0	231	167.5
Talbot	..	..	6	195.0
Taliofarro	..	..	..	..
Taylor	..	..	40	176.0
Terrell	1	1400.0	56	200.8
Towns	..	..	..	..
Troup	17	646.8	706	138.3
Twiggs	..	..	..	..
Union	..	..	..	..



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OIL BURNER NOZZLES

PRECISION MANUFACTURE OUTSTANDING IN THE FIELD

A stainless-steel nozzle made of 3 parts: strainer-disk-tip. Precision-built in design and construction. The ultra nozzle performance is reflected in absolute uniform atomization.

Write for details.

Ultra Metal Utilities Corp.

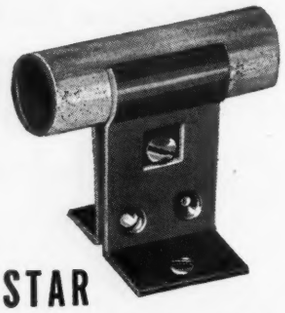
27-05-07 ASTORIA BOULEVARD
LONG ISLAND CITY 2, N. Y.

ADDED PROOF THAT

IN OIL BURNER IGNITION TRANSFORMERS

Super Electric Leads the Field

SEE PAGE 15



STAR
STAND-OFF BRACKET

The Star Stand-off bracket holds 14-2 or 14-3 BX cable or half inch thin wall conduit to furnace or boiler casings. It provides air space between conduit and heated surface as required by electrical codes. PRICE, $5.50 PER HUNDRED. Free sample on request.

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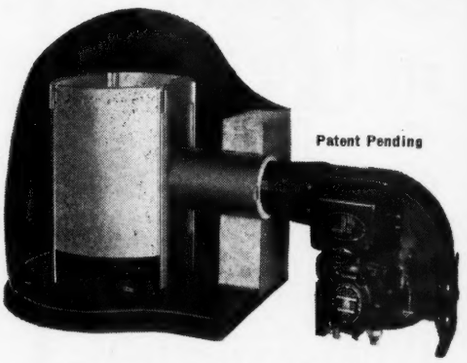
Increases Efficiency—
Reduces Cost!

A Star firebox can be easily set up in less than 3 minutes, for it is made in rounded sections that assemble quickly and easily in the furnace. It is made of high-heat-resisting stainless steel—requires no insulation material for installation and eliminates fire-brick breakage. It is especially useful in cast iron furnaces where it eliminates cutting of grate lugs and adds up to 25% to the heating area of the furnace. Severe tests in actual use have proven its ultra long life! TRADE PRICE $8.40 EACH, F.O.B. SEATTLE, WASHINGTON. Try one!



Patent Pending

MECHANICAL PRODUCTS COMPANY
1723 1st. Avenue So. • Seattle 4, Washington

	R-1100 Central		R-1100 Space	
	Number Issued	*Average Gallons*	*Number Issued*	*Average Gallons*
Upson	1	1500.0	55	97.5
Walker	1	700.0	13	390.4
Walton	..	..	30	381.7
Washington	..	..	76	237.0
Webster	29	445.4	5	116.6
White	..	..	6	419.7
Whitfield	..	..	..	..
Wilcox	..	..	15	283.5
Wilkes	..	..	39	236.5
Wilkinson	..	..	15	150.7
Savannah District				
Appling	28	242.4	61	137.8
Atkinson	..	..	18	221.7
Bacon	13	698.5	27	227.2
Baker	..	..	14	279.3
Ben Hill	10	775.9	216	209.2
Berrien	32	311.5	36	170.0
Brantley	..	..	15	97.3
Brooks	6	603.3	146	158.9
Bryan	1	420.0	87	117.7
Bulloch	13	611.5	289	191.8
Burke	8	1017.5	147	216.4
Calhoun	..	..	40	238.3
Camden	1	1100.0	145	169.7
Candler	3	766.7	48	265.1
Charlton	2	550.0	59	127.8
Chatham	514	829.1	9,684	203.1
Clay	..	..	34	149.9
Clinch	1	2019.0	45	91.2
Coffee	1	680.0	142	172.2
Colquitt	18	732.2	466	222.2

	R-1100 Central		R-1100 Space	
	Number Issued	*Average Gallons*	*Number Issued*	*Average Gallons*
Columbia	4	740.0	48	165.1
Cook	1	760.0	51	114.6
Decatur	17	1029.4	267	190.2
Dougherty	62	821.2	1,028	327.4
Early	2	654.0	54	200.1
Echols	..	..	..	..
Effingham	15	296.9	75	232.2
Emanuel	6	703.3	119	208.4
Evans	..	..	76	216.5
Glascock	..	..	4	349.3
Glynn	168	315.8	517	158.9
Grady	3	1266.7	131	235.8
Irwin	..	..	75	206.7
Jeff Davis	..	..	53	188.5
Jefferson	8	858.8	94	174.9
Jenkins	..	..	64	168.8
Lanier	..	..	2	145.0
Liberty	2	410.0	555	190.5
Long	..	..	28	151.3
Lowndes	36	672.9	711	189.0
McDuffie	15	1180.0	22	269.4
McIntosh	9	388.3	102	166.8
Miller	..	..	31	269.8
Mitchell	4	737.5	92	247.1
Montgomery	3	548.3	11	150.0
Pierce	3	956.7	73	248.0
Richmond	439	963.6	2,041	315.4
Screven	13	781.2	101	195.6
Seminole	2	565.0	71	170.5

Series Concludes in October Issue

STANDARD WATER TUBE BOILERS

A MODERN HEATING PLANT FOR BETTER HOMES!

designed for ECONOMY of OPERATION
DEPENDABILITY and
EFFICIENCY

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OIL BURNER

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"QUALITY BURNERS FOR 26 YEARS"